TOYOTOMI

Service Manual

MODEL:

GAN-A180VL/GAG-A180VL
GAN-A240VL/GAG-A240VL
(Refrigerant R410A)

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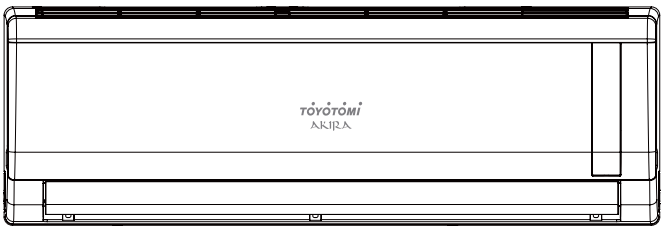
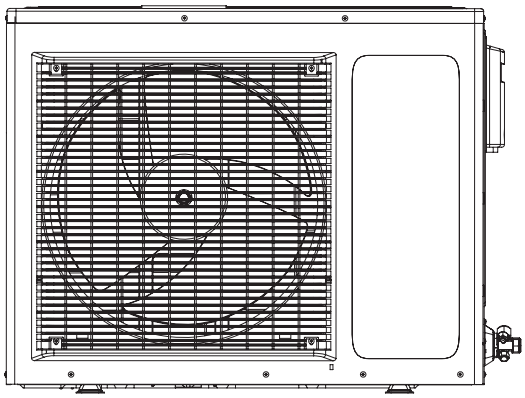
Summary and Features

Indoor Unit

GAN-A128VL
GAN-A135VL
GAN-A180VL
GAN-A240VL



Outdoor Unit



Remote Controller

YAA1FB

1. Safety Precautions

Installing, starting up, and servicing air conditioner can be hazardous due to system pressure, electrical components, and equipment location, etc.

Only trained, qualified installers and service personnel are allowed to install, start-up, and service this equipment. Untrained personnel can perform basic maintenance functions such as cleaning coils. All other operations should be performed by trained service personnel.

When handling the equipment, observe precautions in the manual and on tags, stickers, and labels attached to the equipment. Follow all safety codes. Wear safety glasses andwork gloves. Keep quenching cloth and fire extinguisher nearby when brazing.

Read the instructions thoroughly and follow all warnings or cautions in literature and attached to the unit. Consult local building codes and current editions of national as well as local electrical codes.

Recognize the following safety information:

⚠ Warning	Incorrect handling could result in personal injury or death.
⚠ Caution	Incorrect handling may result in minor injury,or damage to product or property.

⚠ Warning

All electric work must be performed by a licensed technician according to local regulations and the instructions given in this manual.

- Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position. There may be more than 1 disconnect switch. Lock out and tag switch with a suitable warning label.
- Never supply power to the unit unless all wiring and tubing are completed, reconnected and checked.
- This system adopts highly dangerous electrical voltage. Incorrect connection or inadequate grounding can cause personal injury or death. Stick to the wiring diagram and all the instructions when wiring.
- Have the unit adequately grounded in accordance with local electrical codes.
- Have all wiring connected tightly. Loose connection may lead to overheating and a possible fire hazard.

All installation or repair work shall be performed by your dealer or a specialized subcontractor as there is the risk of fire, electric shock, explosion or injury.

- Make sure the outdoor unit is installed on a stable, level surface with no accumulation of snow, leaves, or trash beside.
- Make sure the ceiling/wall is strong enough to bear the weight of the unit.
- Make sure the noise of the outdoor unit does not disturb neighbors.
- Follow all the installation instructions to minimize the risk of damage from earthquakes, typhoons or strong winds.
- Avoid contact between refrigerant and fire as it generates poisonous gas.
- Apply specified refrigerant only. Never have it mixed with any other refrigerant. Never have air remain in the refrigerant line as it may lead to rupture and other hazards.
- Make sure no refrigerant gas is leaking out when installation is completed.
- Should there be refrigerant leakage, the density of refrigerant in the air shall in no way exceed its limited value, or it may lead to explosion.
- Keep your fingers and clothing away from any moving parts.
- Clear the site after installation. Make sure no foreign objects are left in the unit.
- Always ensure effective grounding for the unit.

⚠ Caution

- Never install the unit in a place where a combustible gas might leak, or it may lead to fire or explosion.
- Make a proper provision against noise when the unit is installed at a telecommunication center or hospital.
- Provide an electric leak breaker when it is installed in a watery place.
- Never wash the unit with water.
- Handle unit transportation with care. The unit should not be carried by only one person if it is more than 20kg.
- Never touch the heat exchanger fins with bare hands.
- Never touch the compressor or refrigerant piping without wearing glove.
- Do not have the unit operate without air filter.
- Should any emergency occur, stop the unit and disconnect the power immediately.
- Properly insulate any tubing running inside the room to prevent the water from damaging the wall.

Model			GAN-A180VL GAG-A180VL	GAN-A240VL GAG-A240VL
Product Code			CA305000800_J06911	CA305001400_J06911
Power Supply	Rated Voltage	V~	220-240	220-240
	Rated Frequency	Hz	50	50
	Phases		1	1
Power Supply Mode			Indoor	Indoor
Cooling Capacity		W	5422	6975
Heating Capacity		W	5891	7767
Cooling Power Input		W	1493	2088
Heating Power Input		W	1575	2194
Cooling Power Current		A	7.01	9.12
Heating Power Current		A	7.23	9.83
Rated Input		W	2300	2650
Rated Current		A	10.2	11.76
Air Flow Volume (SH/H/M/L)		m^3/h	850/780/650/500	950/800/700/600
Dehumidifying Volume		L/h	1.8	2
EER		W/W	3.63	3.34
COP		W/W	3.74	3.54
Application Area		m^2	23-34	27-42
Indoor Unit	Model of Indoor Unit		GAN-A180VL	GAN-A240VL
	Product Code of Indoor Unit		CA305N00800_J06911	CA305N01400_J06911
	Fan Type		Cross-flow	Cross-flow
	Diameter Length(DXL)	mm	Φ98X710	Φ98X765
	Fan Motor Cooling Speed (SH/H/M/L)	r/min	1350/1200/1000/800/-	1250/1100/950/800/-
	Fan Motor Heating Speed (SH/H/M/L)	r/min	1420/1250/1100/950/-	1300/1150/1000/850/-
	Output of Fan Motor	W	20	35
	Fan Motor RLA	A	0.31	0.31
	Fan Motor Capacitor	μF	1.5	2.5
	Input of Heater	W	/	/
	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Pipe Diameter	mm	Φ7	Φ7
	Row-fin Gap	mm	2-1.4	2-1.5
	Coil Length (LXDXW)	mm	715X25.4X304.8	765X25.4X342.9
	Swing Motor Model		MP28VB	MP35XX
	Output of Swing Motor	W	2	2.5
	Fuse	A	3.15	3.15
	Sound Pressure Level (SH/H/M/L)	dB (A)	45/39/34/31	44/41/37/35
	Sound Power Level (SH/H/M/L)	dB (A)	55/49/44/41	54/51/47/45
	Dimension (WXHXD)	mm	945X298X208	1018X315X223
	Dimension of Carton Box (LXWXH)	mm	1010X380X285	1083X395X313
	Dimension of Package(LXWXH)	mm	1013X383X300	1086X398X328
	Net Weight	kg	13	15.5
	Gross Weight	kg	17	20.5

Outdoor Unit	Model of Outdoor Unit		GAG-A180VL	GAG-A240VL
	Product Code of Outdoor Unit		CA144W04300_J06911	CA144W05000_J06911
	Compressor Manufacturer/Trademark		ZHUHAI LANDA COMPRESSOR CO.,LTD./ GREE	ZHUHAI LANDA COMPRESSOR CO.,LTD./ GREE
	Compressor Model		QXA-D20E090	QXA-F265N030
	Compressor Oil		ATMOS-RB68EP	RB68EP
	Compressor Type		Rotary	Rotary
	L.R.A.	A	39	49.5
	Compressor RLA	A	7.5±5%	10.6±5%
	Compressor Power Input	W	1700±3%	2220±3%
	Overload Protector		Internal	Internal
	Throttling Method		Capillary	Capillary
	Operation Temp	ºC	16~30	16~30
	Ambient Temp (Cooling)	ºC	18~43	18~43
	Ambient Temp (Heating)	ºC	-7~24	-7~24
	Condenser Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Pipe Diameter	mm	Φ7	Φ7.94
	Rows-fin Gap	mm	2-1.4	2-1.4
	Coil Length (LXDXW)	mm	822X38.1X660	853X38.1X660
	Fan Motor Speed	rpm	780±20	690±15
	Output of Fan Motor	W	68	60
	Fan Motor RLA	A	0.98	0.58
	Fan Motor Capacitor	μF	3	3.5
	Air Flow Volume of Outdoor Unit	m^3/h	2800	3200
	Fan Type		Axial-flow	Axial-flow
	Fan Diameter	mm	Φ460	Φ520
	Defrosting Method		Automatic Defrosting	Automatic Defrosting
	Climate Type		T1	T1
	Isolation		I	I
	Moisture Protection		IP24	IP24
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	3.8	3.8
	Permissible Excessive Operating Pressure for the Suction Side	MPa	1.2	1.2
	Sound Pressure Level (H/M/L)	dB (A)	56/-/-	57/-/-
	Sound Power Level (H/M/L)	dB (A)	66/-/-	67/-/-
	Dimension (WXHXD)	mm	913X680X378	955X700X396
	Dimension of Carton Box (LXWXH)	mm	994X428X725	1026X455X735
	Dimension of Package(LXWXH)	mm	997X431X740	1029X458X750
	Net Weight	kg	48	57
	Gross Weight	kg	52	62
	Refrigerant		R410A	R410A
	Refrigerant Charge	kg	1.4	1.7
Connection Pipe	Length	m	5	5
	Gas Additional Charge	g/m	20	50
	Outer Diameter Liquid Pipe	mm	Φ6	Φ6
	Outer Diameter Gas Pipe	mm	Φ12	Φ16
	Max Distance Height	m	10	10
	Max Distance Length	m	25	25

The above data is subject to change without notice. Please refer to the nameplate of the unit.

2.2 Capacity Variation Ratio According to Temperature

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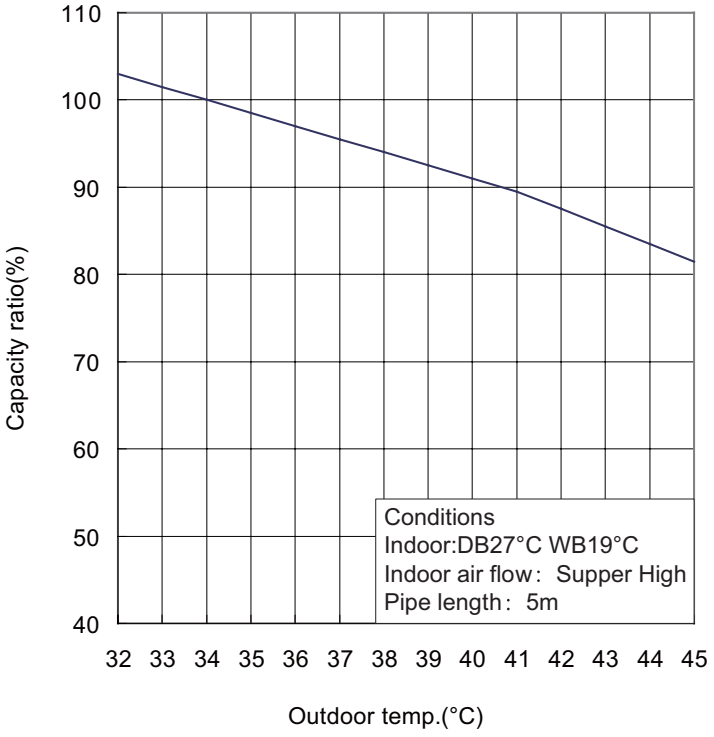
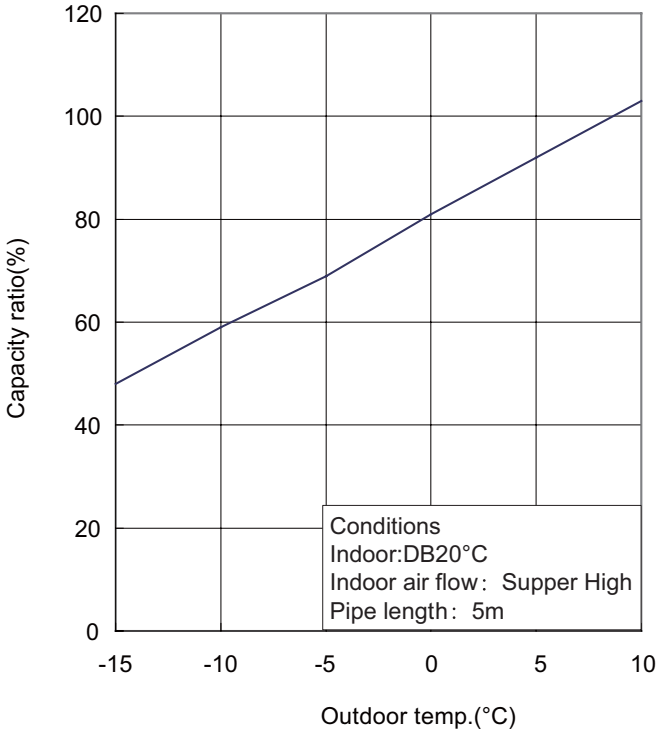
(2)GAN-A180VL/GAG-A180VL、GAN-A240VL/GAG-A240VL

Cooling



Heating



2.3 Operation Data

Cooling

Temperature condition (°C)		Model name	Standard pressure	Heat exchanger pipe temp		Indoor fan mode	Outdoor fan mode
Indoor	Outdoor		P (MPa)	T1 (°C)	T2 (°C)		
27/19	35/-	GAN-A128VL/GAG-A128VL GAN-A135VL/GAG-A135VL	0.8~1.1	in:8~11 out:11~14	in:75~85 out:37~43	Super High	High
		GAN-A180VL/GAG-A180VL	0.8~1.0	9 to 12	75 to 37		
		GAN-A240VL/GAG-A240VL		8 to 11	85 to 37		

Heating

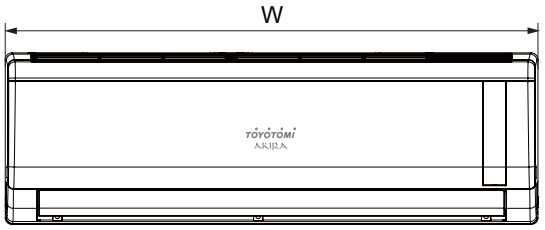
Temperature condition (°C)		Model name	Standard pressure	Heat exchanger pipe temp		Indoor fan mode	Outdoor fan mode
Indoor	Outdoor		P (MPa)	T1 (°C)	T2 (°C)		
20/15	7/6	GAN-A128VL/GAG-A128VL GAN-A135VL/GAG-A135VL	2.8~3.2	in:75~85 out:37~43	in:1~3 out:2~5	Super High	High
		GAN-A180VL/GAG-A180VL	1.8~ 2.0	68 to 34	2 to 4		
		GAN-A240VL/GAG-A240VL	2.5~2.7	85 to 43	1 to 5		

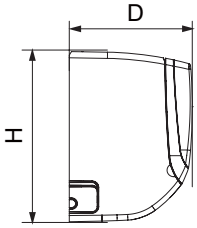
P: The air pipe pressure (gas valve side pressure) connect to indoor and oudoor unit
T1: Inlet and outlet pipe temperature of evaporator
T2: Inlet and outlet pipe temperature of condenser

NOTES :
(1) Measure surface temperature of heat exchanger pipe around center of heat exchanger path U bent. (Thermistor themometer)
(2) Connecting piping condition : 5m

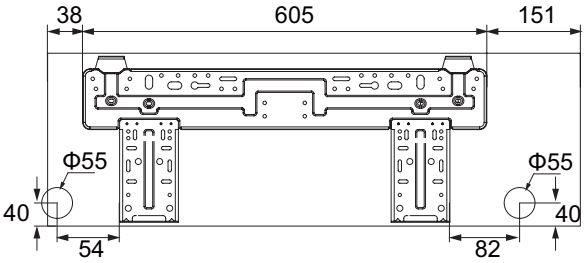
3. Construction Views

3.1 Indoor Unit

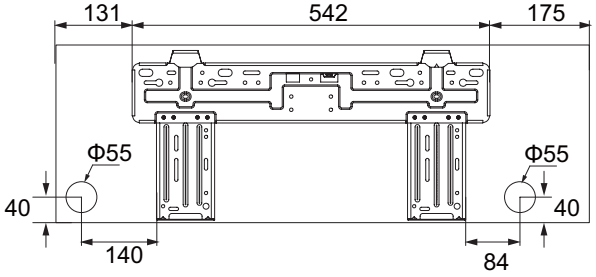




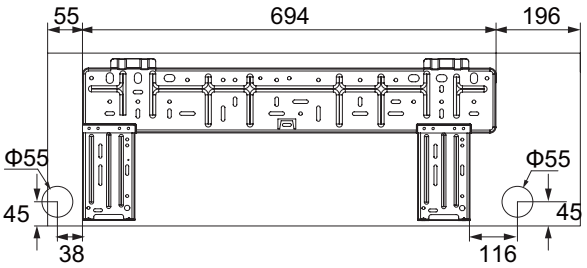
GAN-A128VL



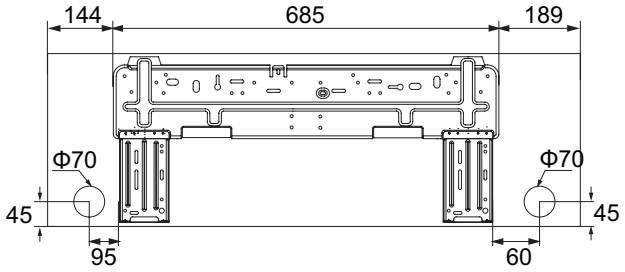
GAN-A135VL



GAN-A180VL



GAN-A240VL



Unit:mm

Model	W	H	D
GAN-A128VL	794	265	182
GAN-A135VL	848	274	189
GAN-A180VL	945	298	208
GAN-A240VL	1018	315	223

3.2 Outdoor Unit

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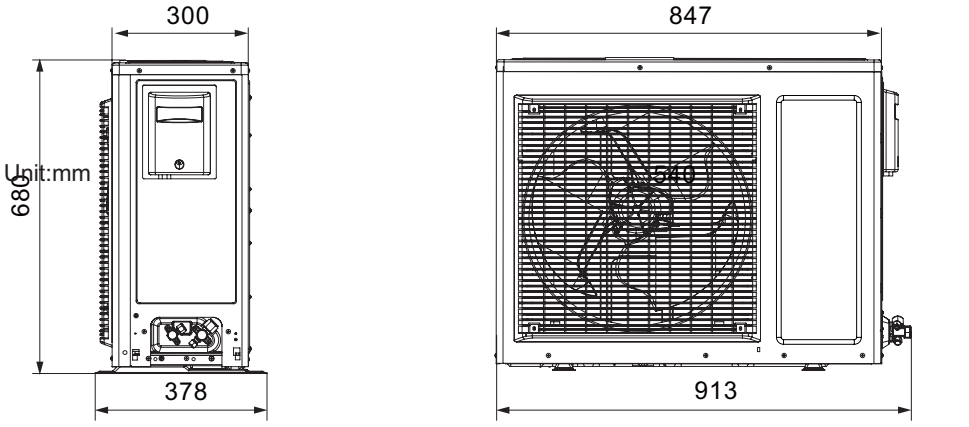
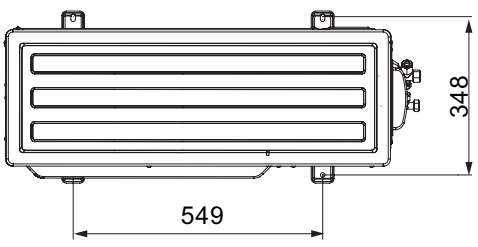
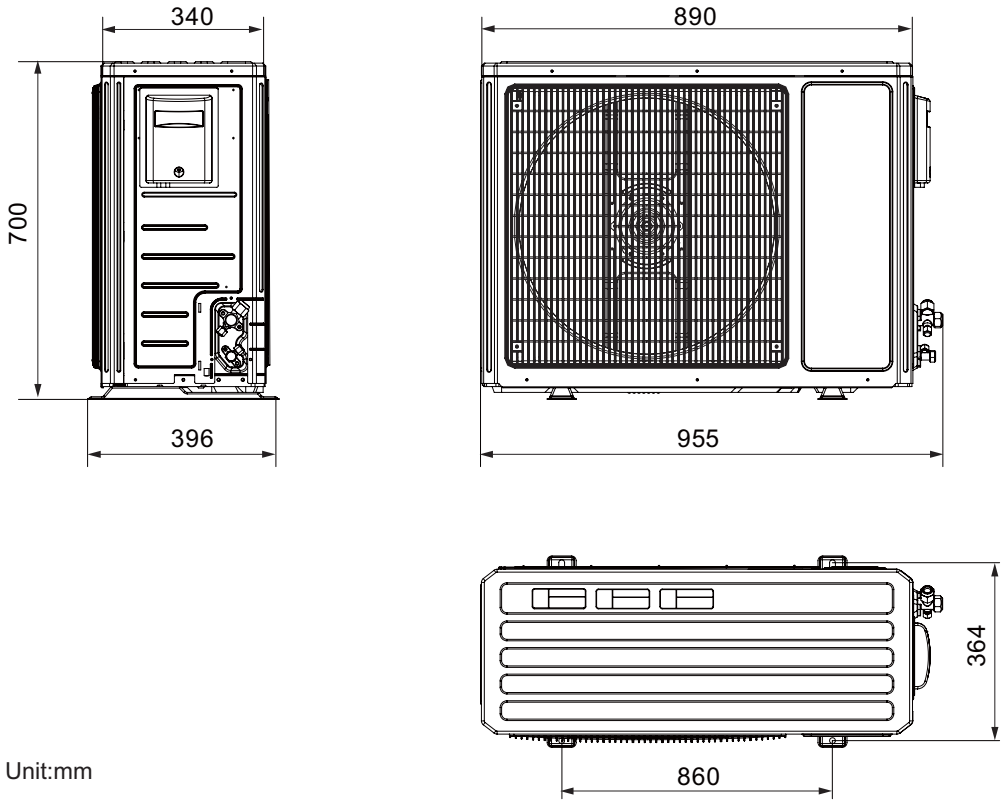
(2)GAG-A180VL





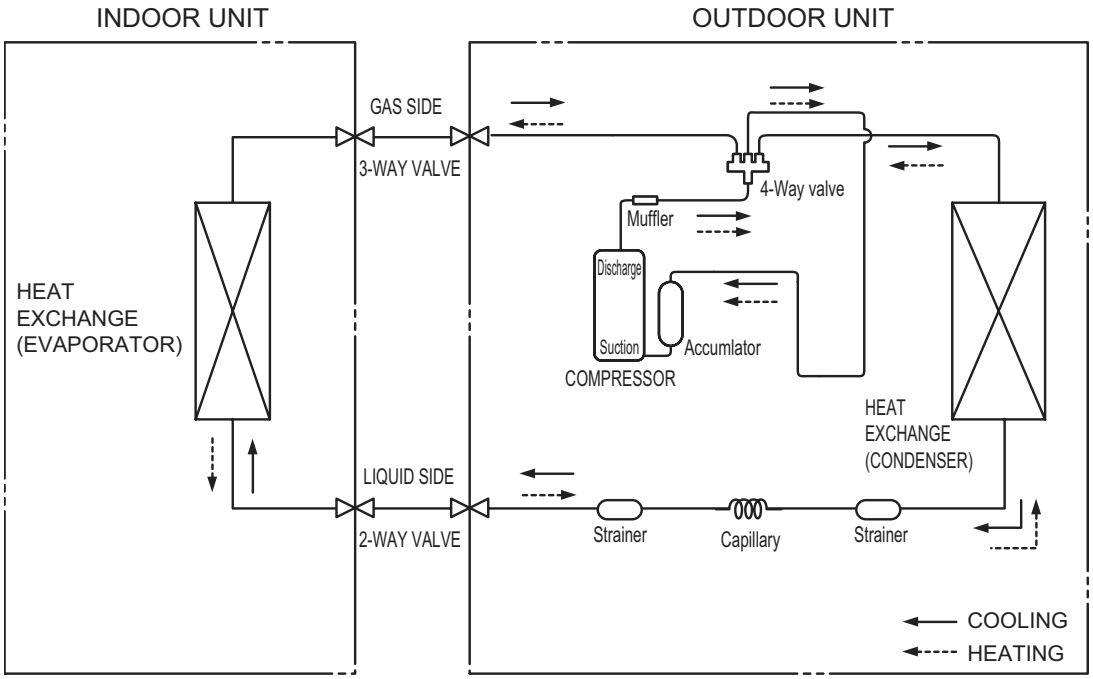
Unit:mm

(3)GAG-A240VL



Unit:mm

4. Refrigerant System Diagram



Refrigerant pipe diameter
Liquid : 1/4" (6 mm) Gas : 3/8" (9.52mm) (For GAN-A128VL/GAG-A128VL)
Liquid : 1/4" (6 mm) Gas : 1/2" (12mm) (For GAN-A135VL/GAG-A135VL、GAN-A180VL/GAG-A180VL)
Liquid : 1/4" (6 mm) Gas : 5/8" (16mm) (For GAN-A240VL/GAG-A240VL)

5. Schematic Diagram

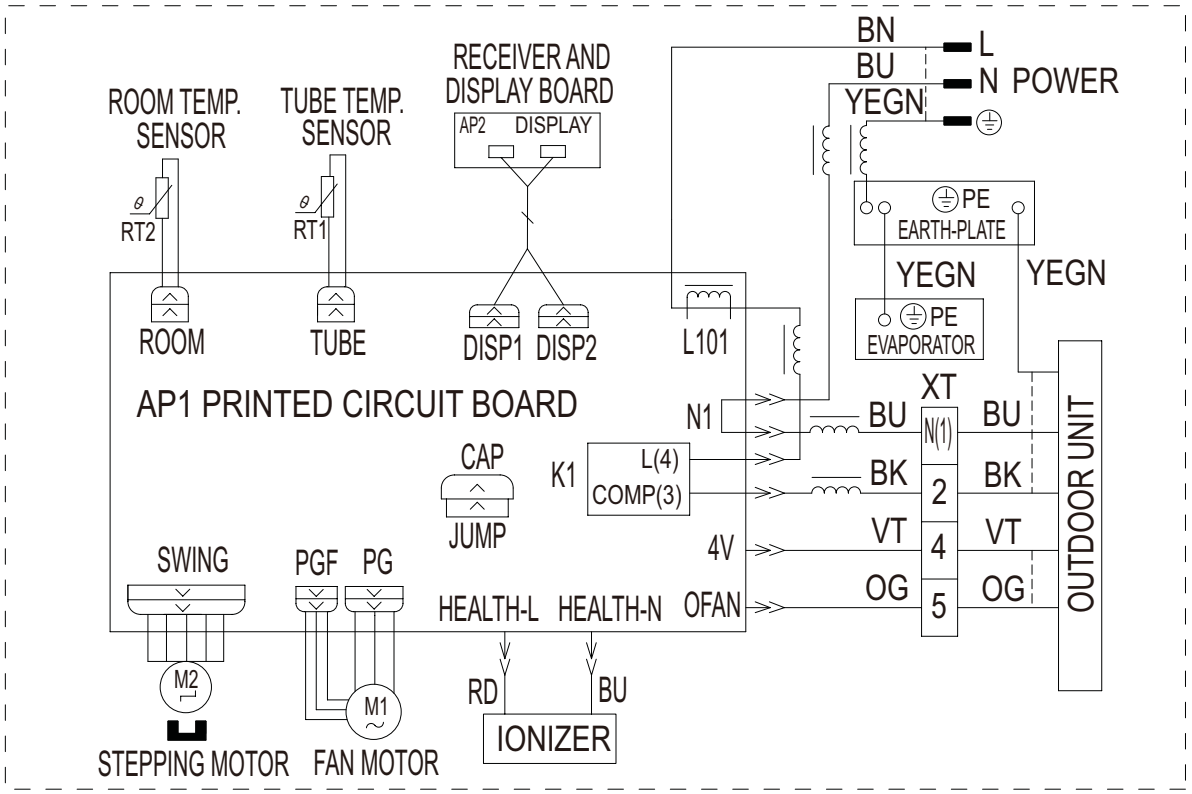
5.1 Electrical Data

Meaning of marks

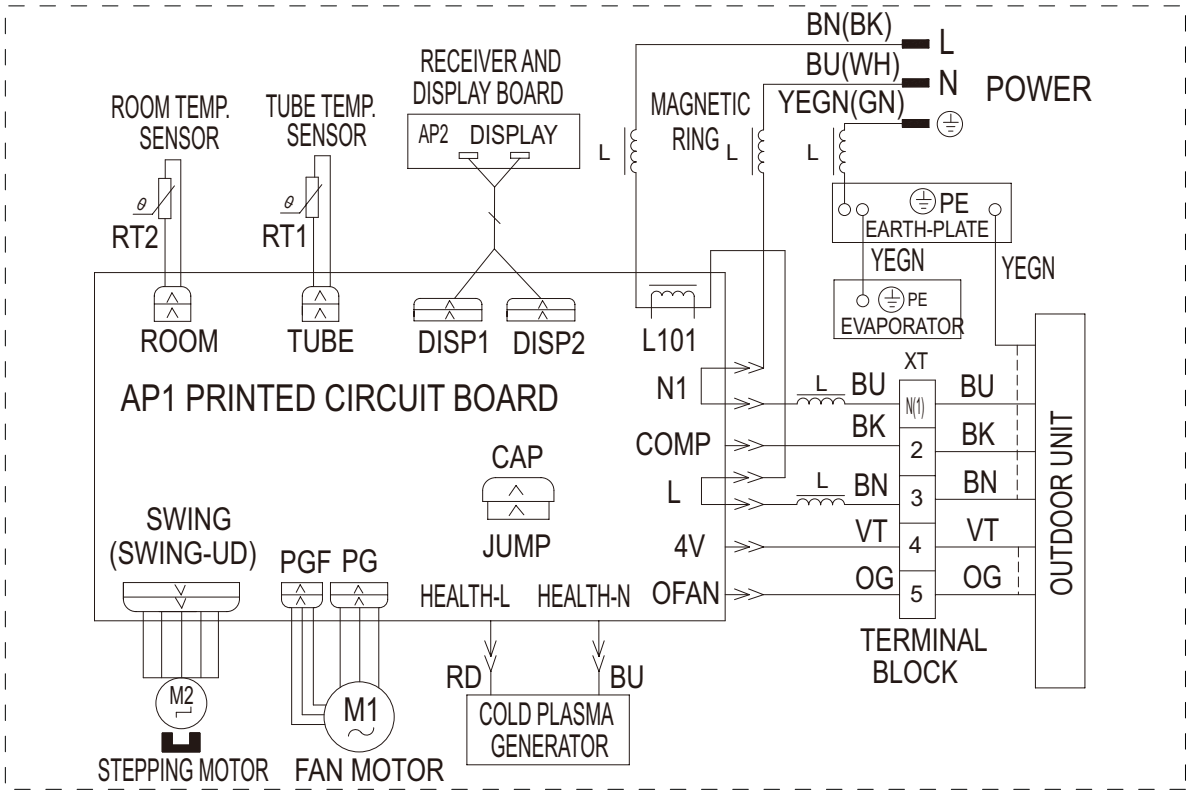
Symbol	Color symbol	Symbol	Color symbol	Symbol	Parts name
WH	WHITE	**GN**	GREEN	**SAT**	OVERLOAD
YE	YELLOW	**BN**	BROWN	**COMP**	COMPRESSOR
RD	RED	**BU**	BLUE	⏚	PROTECTIVE EARTH
YEGN	YELLOW GREEN	**BK**	BLACK	/	/
VT	VIOLET	**OG**	ORANGE	/	/

5.2 Electrical Wiring

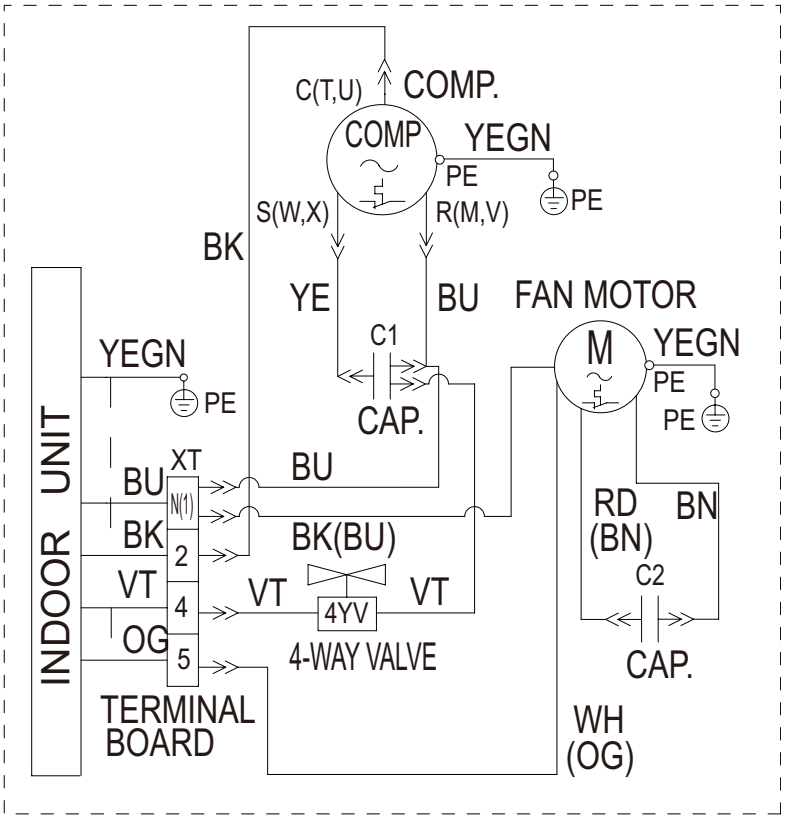
(2)GAN-A180VL



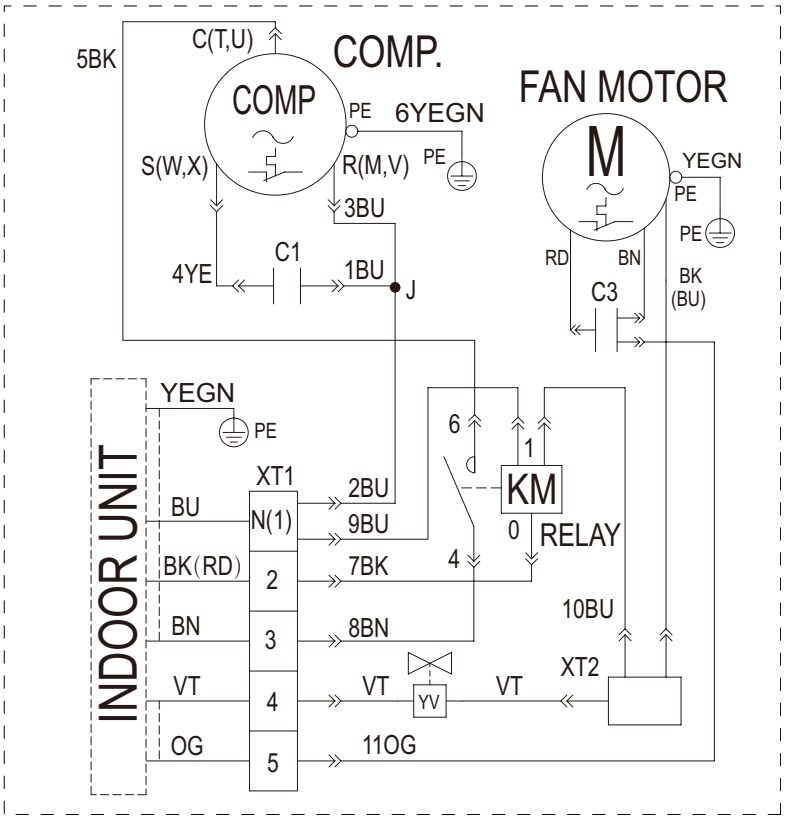
(3)GAN-A240VL



(3)GAG-A180VL

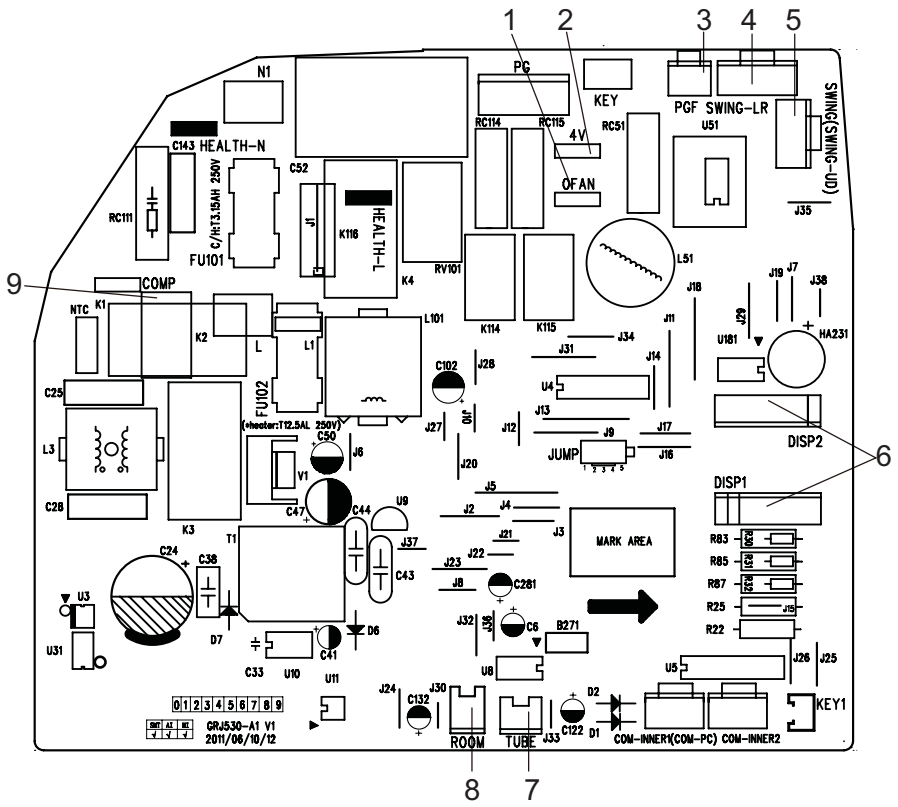


(4)GAG-A240VL



These circuit diagrams are subject to change without notice, please refer to the one supplied with the unit.

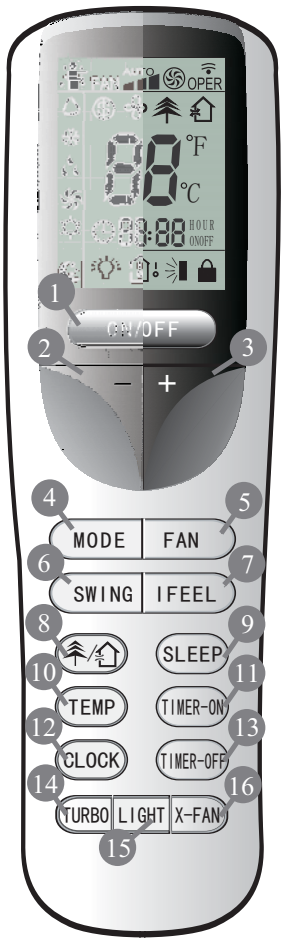
(2)GAN-A180VL/GAG-A180VL
GAN-A240VL/GAG-A240VL



1	Connector of outdoor fan
2	Connector of 4-way valve
3	PG motor feedback connector
4	PG motor drive connector
5	Up &down swing connector
6	Display panel connector
7	Connector of tube temperature sensor
8	Connector of ambient temperature sensor
9	Compressor connector

6. Function and Control

6.1 Remote Controller Description



1 ON/OFF
Press it to start or stop operation.

2 -
Press it to decrease temperaturesetting.

3 +
Press it to increase temperaturesetting.

4 MODE
Press it to select operation mode(AUTO/COOL/DRY/FAN/HEAT).

5 FAN
Press it to set fan speed.

6 SWING
Press it to set swing angle.

7 I FEEL

8 /
Press it to set HEALTH or AIR function.

9 SLEEP

10 TEMP

11 TIMER ON
Press it to set auto-on timer.

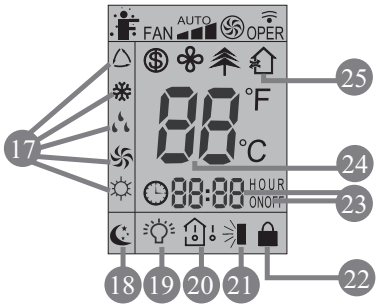
12 CLOCK
Press it to set clock function.

13 TIMER OFF
Press it to set auto-off timer.

14 TURBO

15 LIGHT
Press it to turn on/off the light.

16 X-FAN



17 MODE icon:
If MODE button is pressed,current operation mode icon (AUTO), (COOL), (DRY), (FAN) or (HEAT only for heat pumpmodels) will show.

18 SLEEP icon :
is displayed by pressing the SLEEP button. Press this button again to clear the display.

19 LIGHT icon:
is displayed by pressing the LIGHT button. Press LIGHT button again to clear the display.

20 TEMP icon:
Pressing TEMP button, (set temperature), (indoor ambient temperature), (outdoor ambient temperature) and blank is displayed circularly.

21 Up & down swing icon:
is displayed when pressing the up & down swing down button. Press this button again to clear the display.

22 LOCK icon:

is displayed by pressing "+" and "-" buttons simultaneously. Press them again to clear the display.

23 SET TIME display:

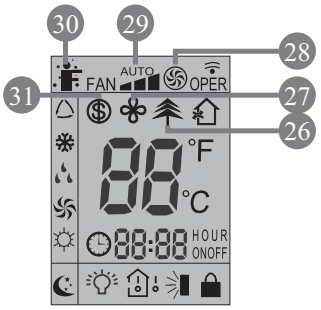
After pressing TIMER button,ON or OFF will blink.This area will show the set time.

24 DIGITAL display:

This area will show the set temperature. In SAVE mode,"SE" will be displayed.

25 AIR icon:

is displayed when pressing the AIR button.Press this button again to clear the display.



26 HEALTH icon:

is displayed when pressing the HEALTH button.Press this button again to clear the display.

27 X-FAN icon:

is displayed when pressing the X-FAN button. Press this button again to clear the display.

28 TURBO icon:

is displayed when pressing the TURBO button.Press this button again to clear the display.

29 FAN SPEED display:

Press FAN button to select the desired fan speed setting(AUTOLow-Med-High).Your selection will be displayed in the LCD windows, except the AUTO fan speed.

30 I FEEL icon:

is displayed when pressing the I FEEL button.Press this button again to clear the display.

31 8℃ Heating icon:

is displayed when Pressing "TEMP" and "CLOCK" simultaneously in Heat mode.

Remote Controller Description

1 ON/OFF :

Press this button to turn on the unit. Press this button again to turn off the unit.

2 -:

Press this button to decrease set temperature. Hold it down for above 2 seconds to rapidly decrease set temperature. In AUTO mode, set temperature is not adjustable.

3 +:

Press this button to increase set temperature. Hold it down for above 2 seconds to rapidly increase set temperature. In AUTO mode, set temperature is not adjustable.

4 MODE :

Each time you press this button, a mode is selected in a sequence that goes from AUTO, COOL,DRY, FAN,and HEAT *, as the following:

AUTO▶ COOL ▶ DRY ▶ FAN ▶HEAT*

*Note:Only for models with heating function.

After energization, AUTO mode is defaulted. In AUTO mode, the set temperature will not be displayed on the LCD, and the unit will automatically select the suitable operation mode in accordance with the room temperature to make indoor room comfortable.

5 FAN :

This button is used for setting Fan Speed in the sequence that goes from AUTO, , to then back to Auto.

6 SWING:

Press this button to set up & down swing angle, which circularly changes as below:

This remote controller is universal. If any command , or is sent out,the unit will carry out the command as

indicates the guide louver swings as:

7 I FEEL:

Press this button to turn on I FEEL function. The unit automatically adjust temperature according to the sensed temperature. Press this button again to cancel I FEEL function.

8 /

Press this button to achieve the on and off of healthy and scavenging functions in operation status. Press this button for the first time to start scavenging function; LCD displays“ ”. Press the button for the second time to start healthy and scavenging functions simultaneously; LCD displays“ ” and “ ” . Press this button for the third time to quit healthy and scavenging functions simultaneously. Press the button for the fourth time to start healthy function; LCD display “ ”. Press this button again to repeat the operation above.

9 SLEEP:

Press this button to go into the SLEEP operation mode. Press it again to cancel this function. This function is available in COOL , HEAT (Only for models with heating function) or DRY mode to maintain the most comfortable temperature for you.

10 TEMP:

Press this button, could select displaying the indoor setting temperature or indoor ambient temperature.When the indoor unit firstly power on it will display the setting temperature, if the temperature's displaying status is changed from other status to" ",displays the ambient temperature, 5s later or within 5s, it receives other remote control signal that will return to display the setting temperature. if the users haven't set up the temperature displaying status,that will display the setting temperature.

11 TIMERON :

Press this button to initiate the auto-ON timer. To cancel the auto-timer program, simply press this button again.

After press of this button, disappear sand " ON " blinks .00:00 is displayed for ON time setting. Within 5 seconds, press + or - button to adjust the time value. Every press of either button changes the time setting by 1 minute. Hold down either button to rapidly change the time setting by 1 minute and then 10 minutes. Within 5 seconds after setting, press TIMER ON button to confirm.

12 CLOCK :

Press CLOCK button, blinking. Within 5 seconds, pressing + or - button adjusts the present time. Hold down either button for above 2 seconds to increase or decrease the time by 1 minute every 0.5 second and then by 10 minutes every 0.5 second. During blinking after setting, press CLOCK button again to confirm the setting, and then will be constantly displayed.

13 TIMER OFF :

Press this button to initiate the auto-off timer. To cancel the auto-timer program, simply press the button again. TIMER OFF setting is the same as TIMER ON.

14 TURBO:

Press this button to activate / deactivate the Turbo function which enables the unit to reach the preset temperature in the shortest time. In COOL mode, the unit will blow strong cooling air at super high fan speed. In HEAT mode, the unit will blow strong heating air at super high fan speed.

15 LIGHT:

Press LIGHT button to turn on the display's light and press this button again to turn off the display 's light. If the light is turned on , is displayed. If the light is turned off, disappears.

16 X-FAN:

Pressing X-FAN button in COOL or DRY mode, the icon is displayed and the indoor fan will continue operation for 10 minutes in order to dry the indoor unit even though you have turned off the unit.

After energization, X-FAN OFF is defaulted. X-FAN is not available in AUTO, FAN or HEAT mode.

17 Combination of "+" and "-" buttons: About lock

Press "+ " and "-" buttons simultaneously to lock or unlock the keypad. If the remote controller is locked, is displayed. In this case, pressing any button, blinks three times.

18 Combination of "MODE " and "-" buttons : About switch between Fahrenheit and centigrade At unit OFF, press "MODE" and "- " buttons simultaneously to switch between ℃ an d ℉ .

19 Combination of " TEMP " and "CLOCK" buttons : About Energy-saving Function

Press “TEMP” and “CLOCK” simultaneously in COOL mode to start energy-saving function. Nixie tube on the remote controller displays “SE”. Repeat the operation to quit the function.

20 Combination of " TEMP " and "CLOCK" buttons : About 8℃ Heating Function

Press “TEMP” and “CLOCK” simultaneously in HEAT mode to start 8℃ Heating Function Nixie tube on the remote controller displays “ ⓢ ” and a selected temperature of “ 8℃”. (46 if Fahrenheit is adopted). Repeat the operation to quit the function.

21 About Back-lighting Function

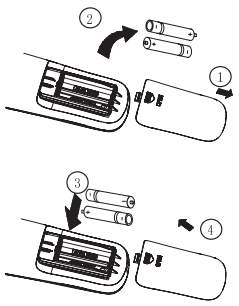
The unit lights for 4s when energizing for the first time, and 3s for later press.

Replacement of Batteries

1.Remove the battery cover plate from the rear of the remote controller.
(As shown in the figure)
2.Take out the old batteries.
3.Insert two new AAA1.5V dry batteries, and pay attention to the polarity.
4. Reinstall the battery cover plate.

★Notes:

●When replacing the batteries, do not use old or different types of batteries, otherwise, it may cause malfunction.
●If the remote controller will not be used for a long time, please remove batteries to prevent batteries from leaking.
●The operation should be performed in its receiving range.
●It should be kept 1m away from the TV set or stereo sound sets.
●If the remote controller does not operate normally, please take the batteries out and reinsert them after 30 seconds.If it still can't operate properly, replace the batteries.



Sketch map for replacing batteries

6.2 Description of Each Control Operation

1 Temperature Parameters

◆ Indoor preset temperature (Tpreset)

◆ Indoor ambient temperature (Tamb.)

2 Basic functions (The temperature in this manual is expressed by Centigrade. If Fahrenheit is used, the switchover between them is Tf=TcX1.8+32.)

Once the compressor is energized, there should be a minimum interval of 3 minutes between two start-ups. But if the unit is de-energized and then energized, the compressor can restart within 3 minutes.

2.1 Cooling Mode

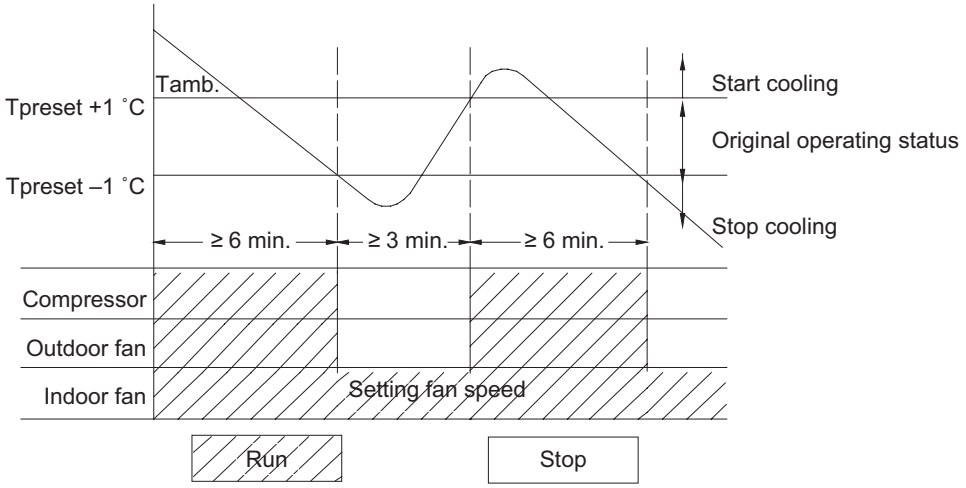
2.1.1 Cooling Conditions and Process

When Tamb. ≥Tpreset+1℃ , the unit starts cooling operation. In this case, the compressor and the outdoor fan operate and the indoor fan operates at set speed.

When Tamb. ≤Tpreset-1℃ , the compressor and the outdoor fan stop while the indoor fan runs at set speed.

When Tpreset-1℃＜ Tamb. ＜ Tpreset+1℃ , the unit will maintain its previous running status.

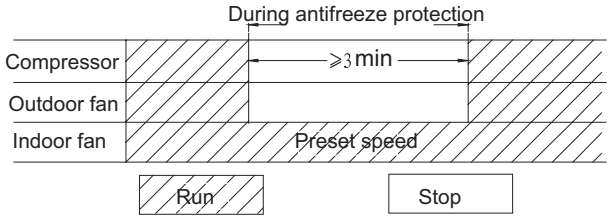
In cooling mode, the four-way valve is de-energized; temperature setting range is 16 ～ 30℃ ; the indoor unit displays operation icon, cooling icon and set temperature.



2.1.2 Protection Functions

◆ **Freeze Protection**

If the system is under freeze protection, the compressor and the outdoor fan stop operation, and the indoor fan operates at set speed. If freeze protection is eliminated and the compressor has been out of operation for 3 minutes, the unit will resume its previous running status.



2.1.3 Overcurrent Protection

(Applicable for GAN-A180VL/GAG-A180VL、GAN-A240VL/GAG-A240VL)

If the system current exceeds the specified value in 3 successive seconds, the complete unit will stop operation except for the indoor fan. A fter 3 minutes, if the overcurrent is eliminated, the complete unit will resume previous operation. If overcurrent protection occurs for 6 successive times (If the compressor operates for 6 minutes continuously, the protective times will be cleared.), the complete unit will stop operation except for the indoor unit. In this case, you are expected to turn off the unit with the remote controller and then restart. During overcurrent protection, the indoor unit displays error code “E5”; the operation indi cator lamp blinks (OFF for 3 seconds and blinks 5 times).

2.2 Dry Mode

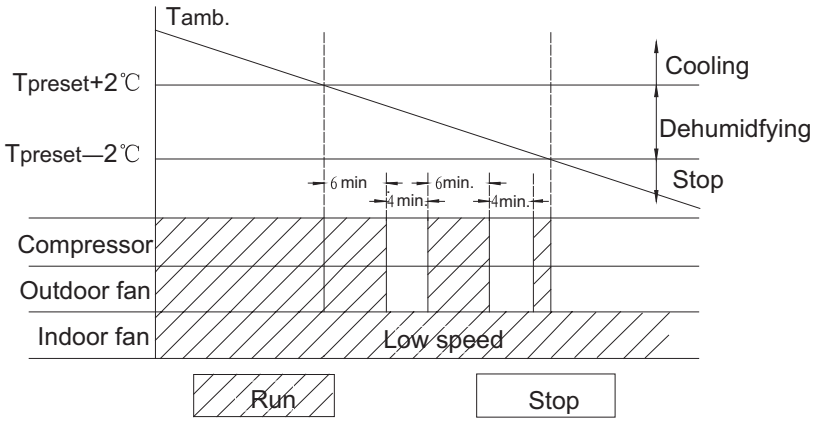
2.2.1 Dry Conditions and Process

When Tamb. ＞ Tpreset+2℃ , the unit starts drying and cooling operation. In this case, the compressor and the outdoor fan operate; the indoor fan operates at low speed.

When Tpreset-2 ℃ ≤Tamb. ≤Tpreset+2 ℃ , the unit will start drying operation. In this case, the indoor fan operates at low speed; the compressor and the outdoor fan operate for 6 minutes and stop for 4 minutes in cycle.

When Tamb. ＜ Tpreset-2℃ , the compressor and the outdoor fan stop operation; the indoor fan operates at low speed.

In drying mode, the four-way valve is de-energized; temperature setting range is 16 ～ 30℃ ; the indoor unit displays operation icon, cooling icon and set temperature.



2.2.2 Protection

◆ Freeze Protection

During drying and cooling operation, if the system is under freeze protection, the compressor and outdoor fan stop operation while indoor fan operates at low speed. If freeze protection is eliminated and the compressor has been out of operation for 3 minutes, the complete unit will resume its previous running status.

During the cycle of on for 6 min and off for 4 min, if freeze protection is detected, the compressor and the outdoor fan will stop operation; the indoor fan will operate at low speed. When freeze protection is eliminated and the compressor has been out of operation for 4 minutes, the complete unit will resume its previous running status.

2.2.3 Other Protection

Other protections are the same as those in cooling mode.

2.3 Heating Mode(Only for heat pump models)

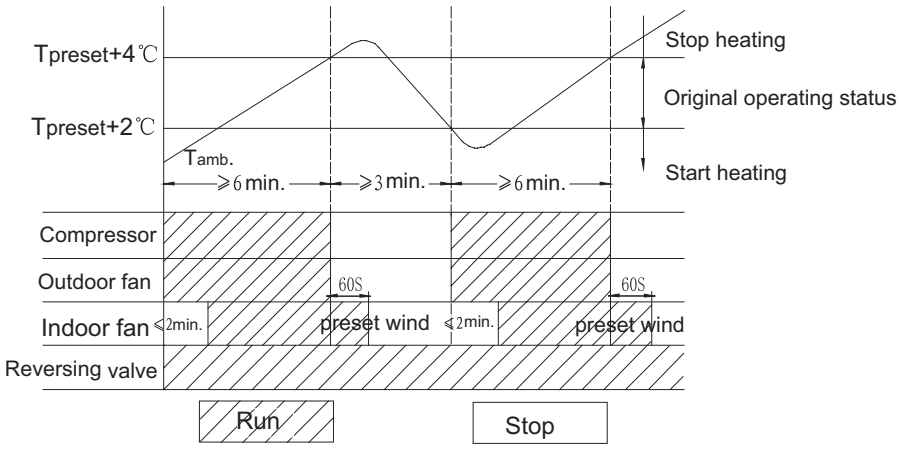
2.3.1 Heating Conditions and Process

When Tamb. ≤Tpreset+2 ℃ , the unit starts heating operation. In this case, the 4-way valve, compressor and outdoor fan operate simultaneously; the indoor fan operates with a maximum delay of 2 minutes.

When Tamb≥Tpreset+4℃ , the compressor and outdoor fan stop operation. The 4-way valve remains energized; the indoor fan blows residual heat.

When Tpreset +2℃＜ T amb. ＜ Tpreset +4℃ , the unit will maintain its previous running status.

Under this mode, the 4-way valve is energized; temperature setting range is 16 ～ 30℃ ; the indoor unit displays operation icon, heating icon and set temperature



2.3.2 Defrosting Conditions and Process

With intelligent defrosting function, the unit defrosts automatically according to the actual condition. The indoor unit displays “H1”.

2.3.3 Protection Functions

◆ Overheating Prevention Protection

If the evaporator tube temperature overheats, the outdoor fan stops operation. When the tube temperature returns to normal, the outdoor fan resumes operation.

◆ Noise Silencing Protection

If the unit is turned off by pressing ON/OFF button or during mode switchover, the 4-way valve stops with a delay of 2 minutes

2.3.4 Overcurrent Protection

This protection is the same as that in cooling m ode (B ut indoor fan will blow residual heat).

2.4 Fan Mode

In fan mode, indoor fan operates at set speed while the compressor and outdoor fanstop operation.

In this mode, temperature setting range is 16 ～ 30℃ . The indoor unit displays operation icon and set temperature.

2.5 Auto Mode

In AUTO mode, the unit will automatically select its operation mode (cooling or fan) with the change of ambient temperature. The indoor unit displays the operation icon, operation mode icon and set temperature. There is a 30-second delay protection for mode switchover. Protection functions are the same as those in any other mode.

3 Other Control

3.1 Timer Function

General timer and clock timer functions are compatible by equipping remote controller with different functions.

3.1.1 General Timer

Timer ON can be set at unit OFF. If selected ON time is reached, the unit will start to operate according to previous setting status. Time setting range is 0.5-24hr in 30-minute increments.

Timer OFF can be set at unit ON. If selected OFF time is reached, the unit will stop operation. Time setting range is 0.5-24hr in 30-minute increments.

3.1.2 Clock Timer

Timer ON

If timer ON is set during operation of the unit, the unit will continue to operate. If timer ON is set at unit OFF, upon ON time reaches the unit will start to operate according to previous setting status.

Timer OFF

If timer OFF is set at unit OFF, the system will keep standby status. If timer OFF is set at unit ON, upon OFF time reaches the unit will stop operation.

Timer Change

Although timer has been set, the unit still can be turned on/off by pressing ON/OFF button of the remote controller. You can also set the timer once again, and then the unit will operate according to the last setting.

If timer ON and timer OFF are set at the same time during operation of the unit, the unit will keep operating at current status till OFF time reaches.

If timer ON and timer OFF are set at the same time at unit OFF, the unit will keep off status till ON time reaches.

Each day in future, the system will operate according to preset mode till OFF time reaches and stop operation till ON time reaches. If ON time and OFF time are the same, OFF command will prevail.

3.2 Auto Button

If this button is pressed, the unit will operate in AUTO mode and indoor fan will operate at auto speed; meanwhile, the swing motor operates. Press this button again to turn off the unit.

3.3 Buzzer

Upon energization or availably operating the unit or remote controller, the buzzer will give out a beep.

3.4 Sleep Function

In SLEEP mode, the unit will automatically select appropriate sleep curve to operate according to different temperature setting.

3.5 Turbo Function

This function can be set in cooling mode to quickly cool the room.

3.6 X-FAN Function

This function can be set in COOL or DRY mode.

3.7 Automatic Control of Fan Speed

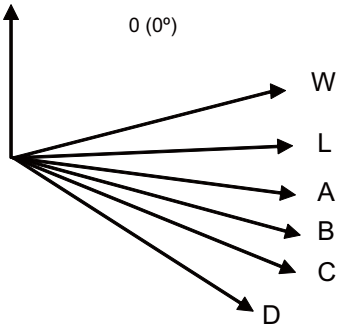
In this mode, the indoor fan will automatically select high, medium or low speed with the change of ambient temperature.

3.8 Up-and-Down Swinging Control

After energization, up & downswing motorwill rotate guide louver anticlockwise to position 0 to close air outlet. After turning on the unit, if swing function hasnot been set, up & downguide louverwill clockwise turn to position D in heating mode, or clockwise turn to level position L in other modes. If the unit is turnedonwith swing function setting, the guide louverwill swing between W and D. There are 7 kindsof swing state s of guide louver: There are position L, A, B, C,D, and it swings and stops be tween L and D (angle between L and D is equiangular).Upon stop of unit, the guide louverwill close to position O. Swingaction is validonlywhen swing command is set and

indoor fan i s running.

Note: If the position is set between L and B, A and C or B andD by remote controller, the guide louverwill swingbetween L and D .



3.9 Display

3.9.1 Operation and Mode Icons

Upon energization, the unit will display all icons. Under standby state, running indicating mark is displayed in red. If the unit is started by remote controller, running indicating mark gives off light; meanwhile, the mark of current running mode will be displayed (mode LED: cooling and dry mode). If the light button is turned off, no mark will be displayed.

3.9.2 Display of Nixie Tube on Indoor Unit

When energized & started for the first time, the indoor unit defaults to displaying current set temperature (16 ～ 30ºC). When set temperature display is set by remote controller, it will display set temperature; when room temperature display is set, it will display room temperature. After that, when operating the remote controller for other settings, the temperature display method will keep original.

When operating the remote controller during room temperature display, the set temperature will be displayed for 5 seconds firstly and then room temperature display returns.

“F1” will be displayed upon malfunction of room temperature sensor, “F2” upon malfunction of indoor unit tube temperature sensor and “C5” upon malfunction of jumper cap.

For some models, if set temperature display is set by the remote controller, current set temperature will be displayed. After that, when switching to room temperature display from set temperature or outdoor temperature by the remote controller, room temperature will be displayed for 5 seconds firstly and then set temperature display returns.

3.10 Locked Protection to PG Motor

If the indoor fan motor keeps low rotation speed for a continuous period of time after startup, the unit will stop operation and display “H6”.

3.11 Memory Function

Memorized items: mode, up & down swing, light, set temperature and set fan speed.

When power is recovered after power failure, the unit will automatically start operation according to memorized status. After power recovery, the unit without timer setting before power failure will operate according to the last setting; the unit with general timer setting which has not been fulfilled before power failure will memorize the timer setting and re-calculate the time after.

4 Special Functions(Optional)

4.1 HEALTH Function

During operation of the indoor unit fan, press HEALTH button on the remote controller to start health function (If there is not HEALTH button on the remote controller, the unit defaults health function ON).

4.2 I FEEL Function

When I FEEL command is received, the controller will operate according to the ambient temperature sent by the remote controller (For defrosting and cold blow prevention, the unit operates according to the ambient temperature sensed by the air conditioner). The remote controller will regularly send ambient temperature data to the controller. When the data has not been received for a long time, the unit will operate according to the temperature sensed by the air conditioner. If I FEEL function is not selected, the ambient temperature will be that sensed by the air conditioner. I FEEL function is not to be memorized.

7. Installation Manual

7.1 Notices for Installation

Caution

1.The unit should be installed only by authorized service center according to local or government regulations and in compliance with this manual.
2.Before installing, please contact with local authorized maintenance center. If the unit isnot installed by the authorized service center, the malfunction may not be solved due to incovenient contact between the user and the service personnel.
3.When removing the unit to the other place, please firstly contact with the local authorized service center.
4.Warning: Before obtaining access to terminals, all supply circuits must be disconnected.
5.For appliances with type Y attachment, the instructions shall contain the substance of the following. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
6.The appliance must be positioned so that the plug is accessible.
7.The temperature of refrigerant line will be high; please keep the interconnection cable away from the copper tube.
8.The instructions shall state the substance of the following:
This appliance is not intended for use by persons(including children)with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
Children should be supervised to ensure that they do not play with the appliance.

7.1.1 Installation Site Instructions

Proper installation site is vital for correct and efficient operation of the unit. Avoid the following sites where:
●strong heat sources, vapours, flammable gas or volatile liquids are emitted.
●high-frequency electro-magnetic waves are generated by radio equipment,welders and medical equipment.
●salt-laden air prevails (such as close to coastal areas).
●the air is contaminated with industrial vapours and oils.
●the air contains sulphures gas such as in hot spring zones.
●corrosion or poor air quality exists.

7.1.2 Installation Site of Indoor Unit

1.The air inlet and outlet should be away from the obstructions. Ensure the air can be blown through the whole room.
2.Select a site where the condensate can be easily drained out, and where it is easily connected to outdoor unit.
3.Select a place where it is out of reach of children.
4.Select a place where the wall is strong enough to withstand the full weight and vibration of the unit.
5.Be sure to leave enough space to allow access for routine maintenance. The installation site should be 250cm or more above the floor.
6.Select a place about 1m or more away from TV set or any other electric appliance.
7.Select a place where the filter can be easily taken out.
8.Make sure that the indoor unit is installed in accordance with installation dimension instructions.
9.Do not use the unit in the laundry or by swimming pool etc.

7.1.3 Installation Site of Outdoor Unit

1.Select a site where noise and outflow air emitted by the unit will not annoy neighbors.
2.Select a site where there is sufficient ventilation.
3.Select a site where there is no obstruction blocking the inlet and outlet.
4.The site should be able to withstand the full weight and vibration.
5.Select a dry place, but do not expose the unit to direct sunlight or strong wind.
6.Make sure that the outdoor unit is installed in accordance with the installation instructions, and is convenient for maintenance and repair.
7.The height difference between indoor and outdoor units is within 10 m, and the length of the connecting tubing does not exceed 15m(GAN-A128VL/GAG-A128VL),20m(GAN-A135VL/GAG-A135VL)
or 25m(GAN-A180VL/GAG-A180VL、GAN-A240VL/GAG-A240VL).
8.Select a place where it is out of reach of children.
9.Select a place where the unit does not have negative impact on pedestrians or on the city.

7.1.4 Safety Precautions for Electric Appliances

1.A dedicated power supply circuit should be used in accordance with local electrical safety regulations.
2.Don't drag the power cord with excessive force.
3.The unit should be reliably earthed and connected to an exclusive earth device by the professionals.
4.The air switch must have the functions of magnetic tripping and heat tripping to prevent short circuit and overload.
5.The minimum distance between the unit and combustive surface is 1.5m.
6.The appliance shall be installed in accordance with national wiring regulations.
7.An all-pole disconnection switch with a contact separation of at least 3mm in all poles should be connected in fixed wiring.

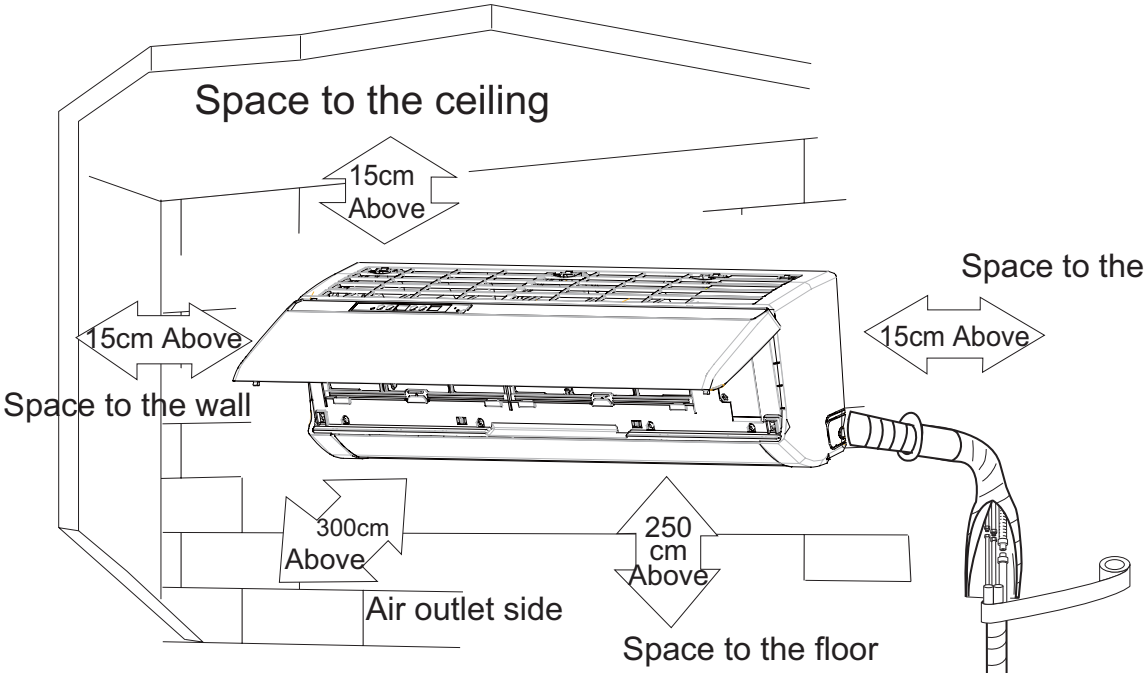
Note:

- Make sure the live wire, neutral wire and earth wire in the family power socket are properly connected.
- There should be reliable circuit in the diagram.Inadequate or incorrect electrical connections may cause electric shock or fire.

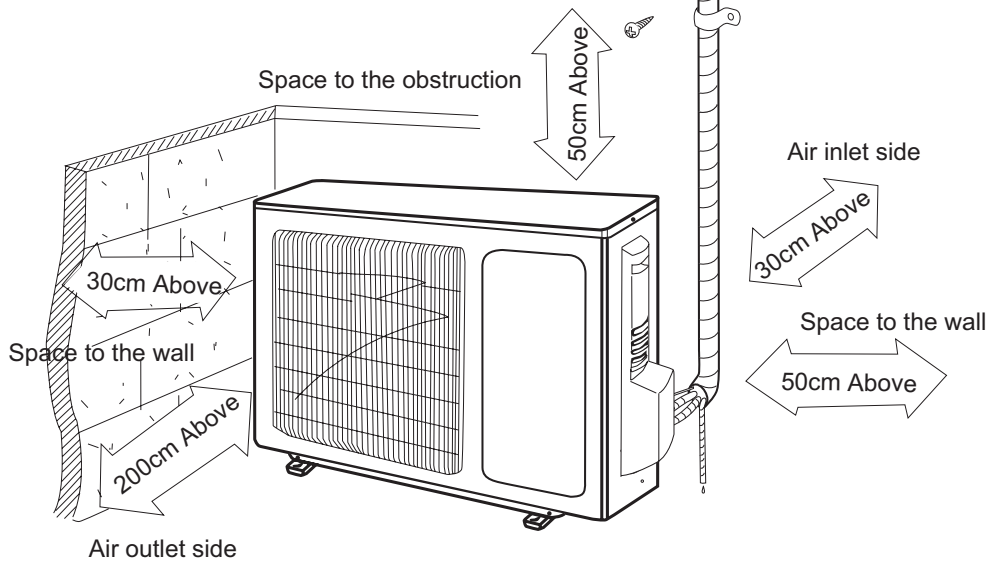
7.1.5 Earthing Requirements

1.Air conditioner is type I electric appliance. Please ensure that the unit is reliably earthed.
2.The yellow-green wire in air conditioner is the earthing wire which can not be used for other purposes. Improper earthing may cause electric shock.
3.The earth resistance should accord to the national criterion.
4.The power must have reliable earthing terminal. Please do not connect the earthing wire with the following:
① Water pipe ② Gas pipe ③ Contamination pipe ④ Other place that professional personnel consider is unreliable
5. The model and rated values of fuses should accord with the silk print on fuse cover or related PCB.

7.2 Installation Drawing



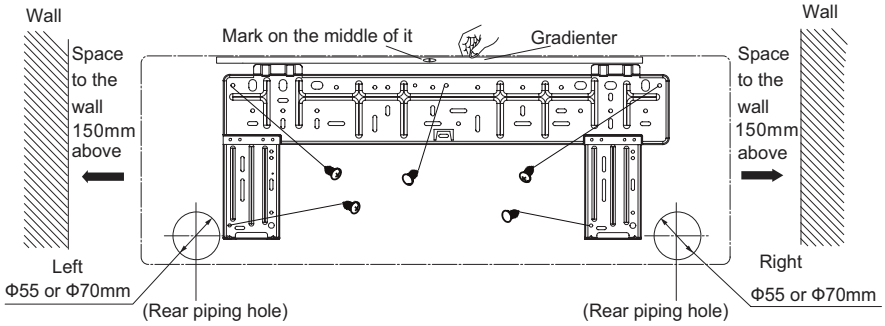
- The dimensions of the space necessary for proper installation of the unit include the minimum permissible distances to adjacent parts.



7.3 Install Indoor Unit

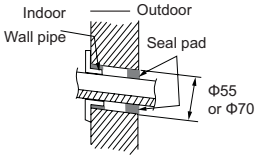
7.3.1 Installation of Mounting Plate

1.Mounting plate should be installed horizontally. As the water tray's outlet for the indoor unit is two-way type, during installation, the indoor unit should slightly slant to water tray's outlet for smooth drainage of condensate.
2.Fix the mounting plate on the wall with screws.
3.Be sure that the mounting plate has been fixed firmly enough to withstand about 60 kg. Meanwhile, the weight should be evenly shared by each screw.



7.3.2 Drill Piping Hole

1.Slant the piping hole (Φ55 or Φ70) on the wall slightly downward to the outdoor side.
2.Insert the piping-hole sleeve into the hole to prevent the connection piping and wiring from being damaged when passing through the hole.



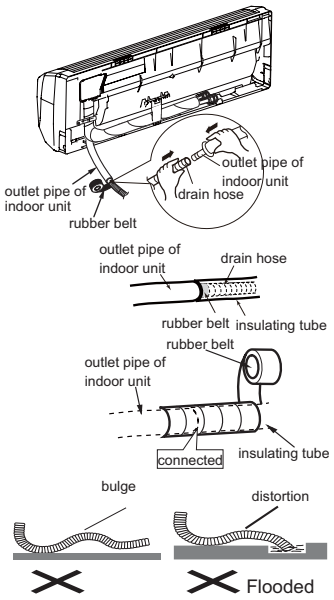
7.3.3 Installation of Drain Hose

1.Connect the drain hose to the outlet pipe of the indoor unit.Bind the joint with rubber belt.

2.Put the drain hose into insulating tube.

3.Wrap the insulating tube with wide rubber belt from the joint of outlet pipe and insulating pipe so as to prevent shift of insulating tube. The drain hose should be placed at a downward slant for easy discharge of condensate.

Note: the insulating tube should be connected reliably with the sleve outside the outlet pipe. The drain hose should be downward slant, without distortion, bulge or fluctuation. Do not put the water outlet in the water.



7.3.4 Connecting Indoor and Outdoor Electric Wires

1.Open the front panel.
2.Remove the wiring cover,connect and fix power connection cord and signal control wire to the terminal board.As shown in Fig.2.
3.Make the power connection cord and signal control wire pass through the hole at the back of indoor unit.
4.Reinstall the cord anchorage and wiring cover.
5.Reinstall the front panel.

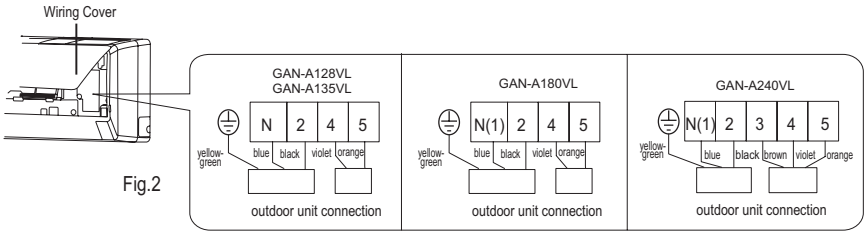


Fig.2

NOTE:
All wires between indoor and outdoor units must be connected by the qualified electric contractor.
● Electric wires must be connected correctly. Improper connection may cause malfunction.
● Tighten the terminal screws securely.
● After tightening the screws, pull the wire slightly to confirm whether it's firm or not.
● Make sure that the electric connections are earthed properly to prevent electric shock.
● Make sure that all wiring connections are secure and the cover plates are reinstalled properly. Poor installation may cause fire or electric shock.

7.3.5 Installation of Indoor Unit

●The piping can be output from right, right rear, left or left rear.
1.When routing the piping and wiring from the left or right side of indoor unit, cut off the tailings from the chassis when necessary.(As shown in Fig.3)
(1)Cut off the tailing 1 when routing the wiring only;
(2)Cut off the tailing 1 and tailing 2 when routing both the wiring and piping.
2.Take out the piping from body case, wrap the piping, power cords, drain hose with the tape and make them through the piping hole. (As shown in Fig.4)
3.Hang the mounting slots of the indoor unit on the upper hooks of the mounting plate and check if it is firm enough.(As shown in Fig.5)
4.The installation site should be 250cm or more above the floor.

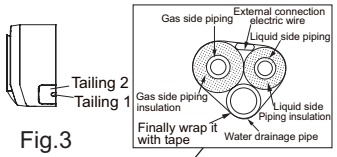


Fig.3

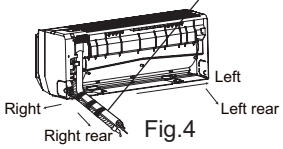


Fig.4

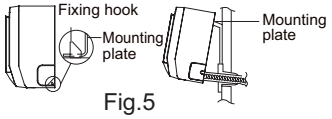
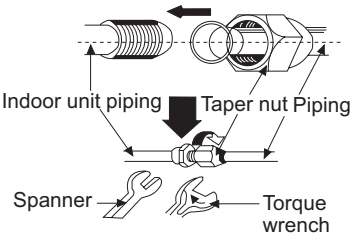


Fig.5

7.3.6 Installation of Connection Pipe

1.Align the center of the pipe flare with the relevant valve.
2.Screw in the flare nut by hand and then tighten the nut with spanner and torque wrench referring to the following:

Hex nut diameter	Tightening torque (N·m)
Φ6	15～20
Φ 9.52	31～35
Φ 12	50～55
Φ 16	60～65
Φ 19	70～75

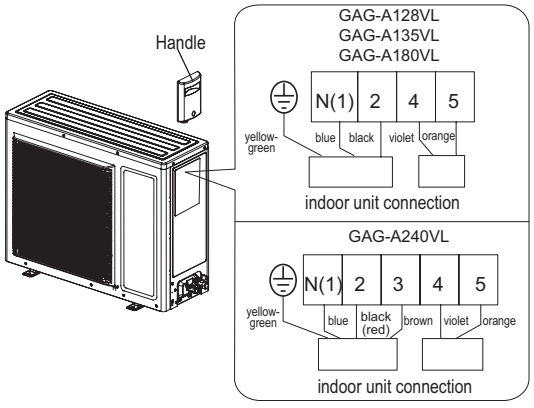


NOTE:
Connect the connection pipe to indoor unit at first and then to outdoor unit. Handle piping bending with care. Do not damage the connection pipe. Ensure that the joint nut is tightened firmly, otherwise, it may cause leakage.

7.4 Installation of Outdoor Unit

7.4.1 Electric Wiring

1. Remove the handle on the right side plate of outdoor unit.
2. Take off wire cord anchorage. Connect and fix power connection cord and signal control wire to the terminal board.Wiring should fit that of indoor unit.
3. Fix the power connection cord and signal control wire with wire clamps and then connect the corresponding connector.
4. Confirm if the wire has been fixed properly.
5. Reinstall the handle.



NOTE:
● Incorrect wiring may cause malfunction of spare part.
● After the wire has been fixed, ensure there is frees pace between the connection and fixing places on the lead wire.

7.4.2 Air Purging and Leakage Test

1. Connect charging hose of manifold valve to charge end of low pressure valve (both high/low pressure valves must be tightly shut).
2. Connect joint of charging hose to vacuum pump.
3. Fully open the handle of Lo manifold valve.
4. Open the vacuum pump for vacuumization. At the beginning, slightly loosen joint nut of low pressure valve to check if there is air coming inside. (If noise of vacuum pump has been changed, the reading of multimeter is 0) Then tighten the nut.
5. Keep evacuating for more than 15mins and make sure the reading of multi-meter is-1.0 $X10^5$pa(-76cmHg).
6. Fully open high/low pressure valves.
7. Remove charging hose from charging end of low pressure valve.
8. Tighten bonnet of low pressure valve. (As shown in Fig.6)

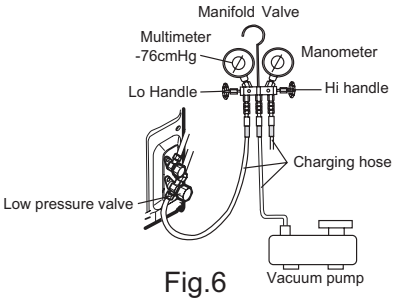
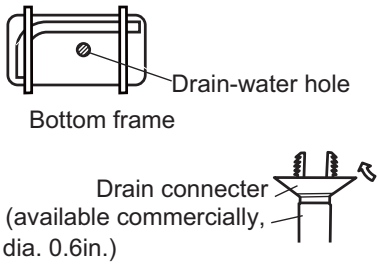


Fig.6

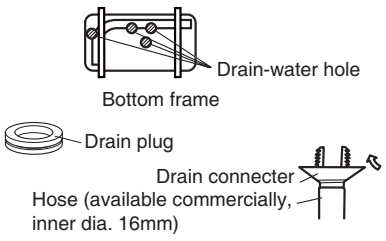
7.4.3 Outdoor condensate Drainage (only for heat pump type)

During heating operation, the condensate and defrosting water should be drained out reliably through the drain hose.Install the outdoor drain connector in a Φ25 hole on the base plate and attach the drain hose to the connector so that the waste water formed in the outdoor unit can be drained out.The hole diameter 25 must be plugged.
Whether to plug other holes will be determined by the dealers according to actual conditions.

GAG-A128VL
GAG-A135VL



GAG-A180VL
GAG-A240VL



7.5 Check after Installation and Test Operation

7.5.1 Check after Installation

Items to be checked	Possible malfunction
Has the unit been fixed firmly?	The unit may drop, shake or emit noise.
Have you done the refrigerant leakage test?	It may cause insufficient cooling(heating)
Is thermal insulation sufficient?	It may cause condensation.
Is water drainage satisfactory?	It may cause water leakage.
Is the voltage in accordance with the rated voltage marked on the nameplate?	It may cause electric malfunction or damage the unit.
Is the electric wiring or piping connection installed correctly and securely?	It may cause electric malfunction or damage the parts.
Has the unit been securely earthed?	It may cause electrical leakage.
Is the power cord specified?	It may cause electric malfunction or damage the parts.
Is the inlet or outlet blocked?	It may cause insufficient cooling(heating)
Is the length of connection pipes and refrigerant capacity recorded?	The refrigerant capacity is not accurate.

7.5.2 Operation Test

1.Before Operation Test
(1)Do not switch on power before installation is finished completely.
(2)Electric wiring must be connected correctly and securely.
(3)Cut-off valves of the connection pipes should be opened.
(4)All the impurities such as scraps and thrums must be cleared from the unit.
2.Operation Test Method
(1)Switch on power and press "ON/OFF" button on the wireless remote controller to start the operation.
(2)Press MODE button to select the COOL, HEAT (Not available for cooling only unit), FAN to check whether the operation is normal or not.

7.6 Installation and Maintenance of Healthy Filter

7.6.1 Installation of Healthy Filter

1.Lift up the front panel from its two ends, as shown by the arrow direction, and then remove the air filter.(As shown Fig.a)

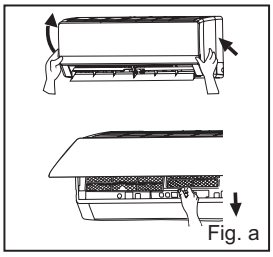


Fig. a

2.Attach the healthy filter onto the air filter.(As shown Fig.b)

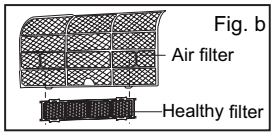


Fig. b

3. Install the air filter properly along the arrow direction in Fig.c, and then close the panel .

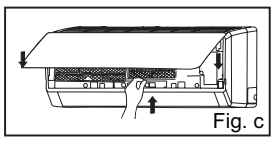


Fig. c

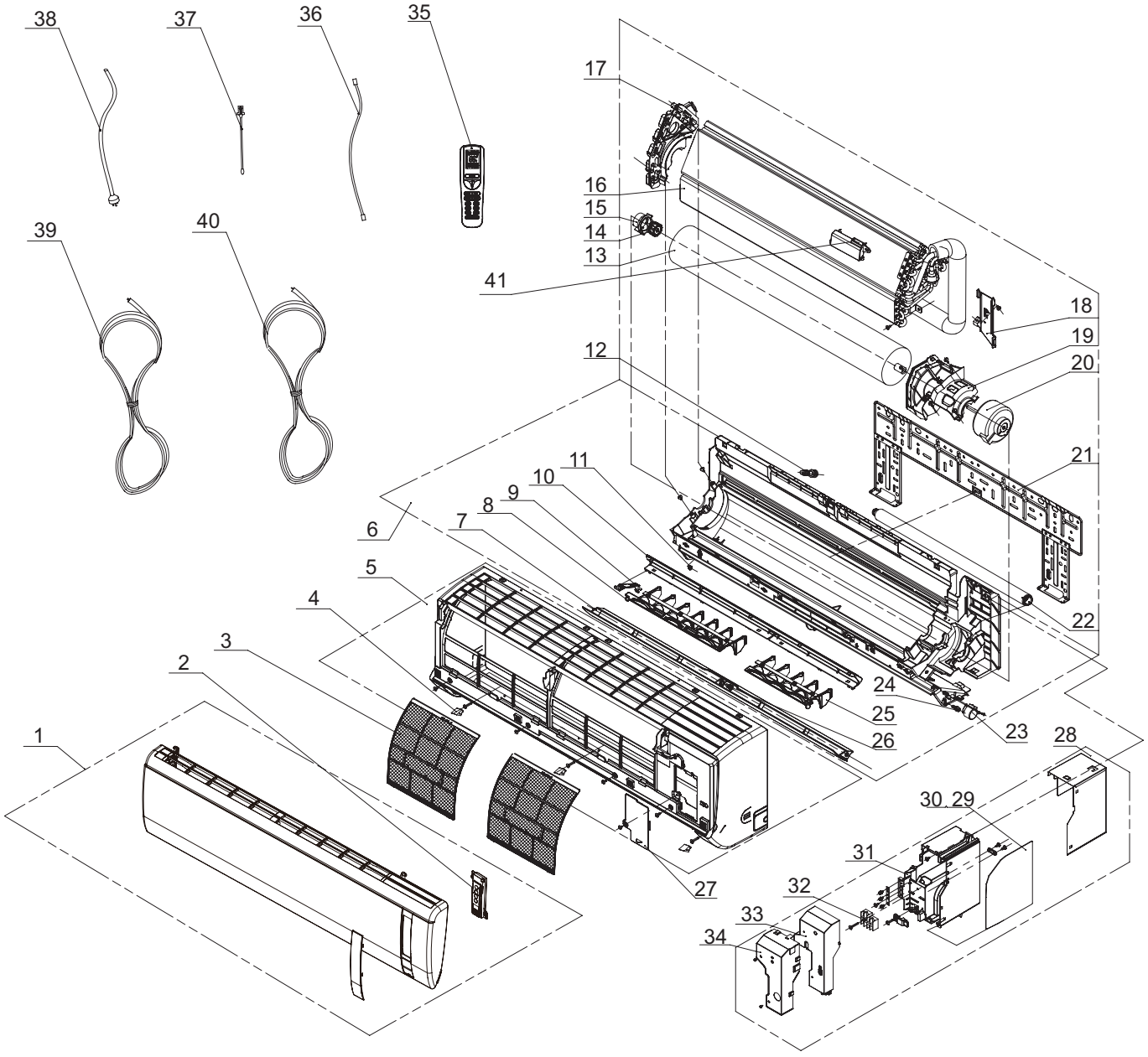
7.6.2 Cleaning and Maintenance

Remove the healthy filter and reinstall it after cleaning according to the installation instruction. Do not use brush or hard objects to clean the filter. After cleaning, be sure to dry it in the shade.

7.6.3 Service Life

The general service life for the healthy filter is about one year under normal condition. As for silver ion filter, it is ineffective when its surface becomes black (green).
●This supplementary instruction is provided for reference to the unit with healthy filter. If the graphics provided herein are different from the actual product, please refer to the actual product. The quantity of healthy filters is based on the actual delivery.

(2)GAN-A180VL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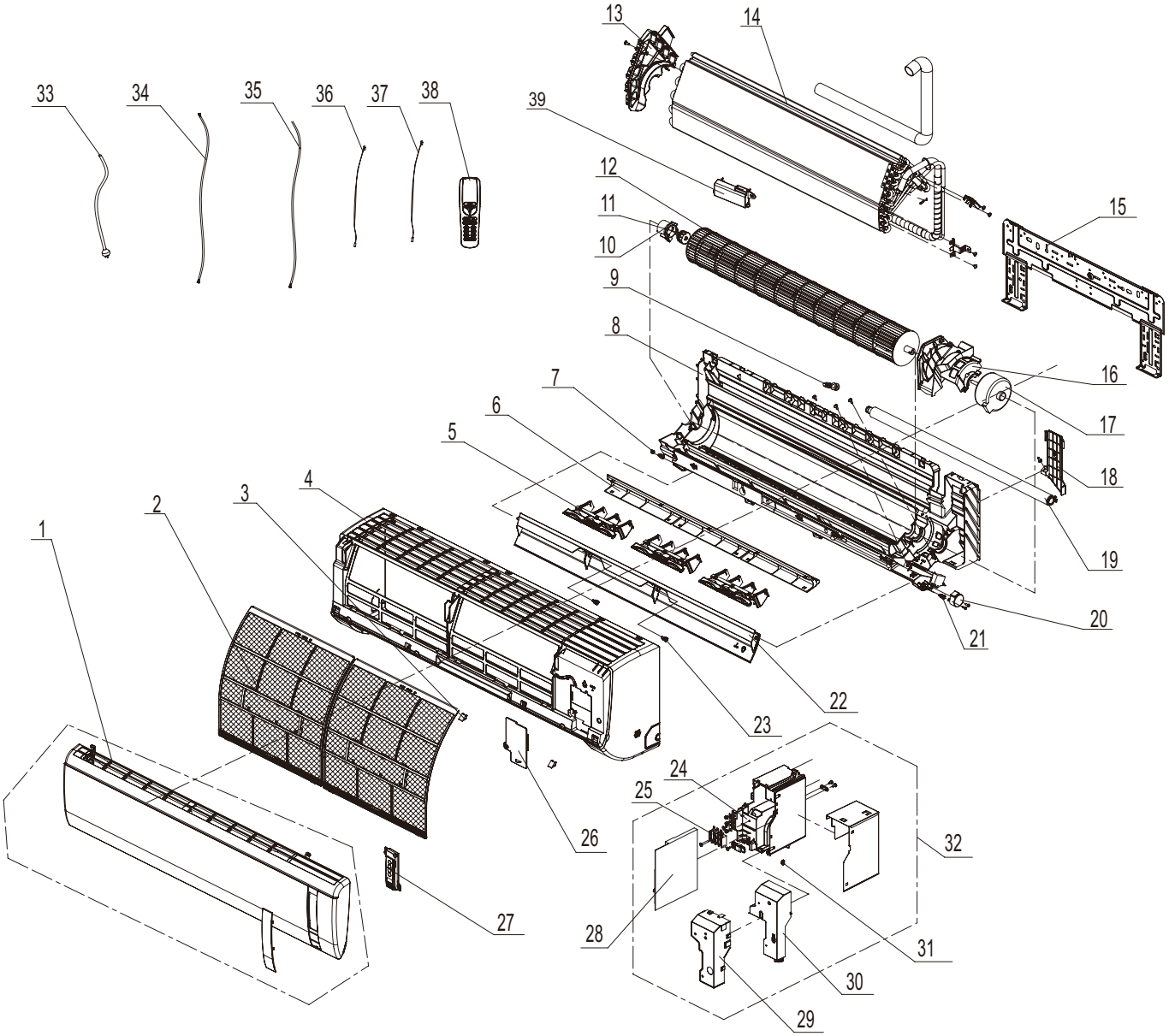
No.	Description	Part Code	Qty
		GAN-A180VL	
	Product Code	CA305N00800_J06911	
1	Front Panel Assy	20022253_J06911	1
2	Display Board	30565207	1
3	Filter Sub-Assy	1112208901	2
4	Screw Cover	242520179	3
5	Front Case Sub-Assy	2001266701	1
6	Rear Case assy	22202193	1
7	Guide Louver	1051220501	1
8	Air Louver 1	1051211602	1
9	Baffle Plate	2611222802	1
10	Helicoid tongue	2611223802	1
11	Left Axile Bush	10512037	1
12	Rubber Plug (Water Tray)	76712012	1
13	Cross Flow Fan	10352019	1
14	O-Gasket sub-assy of Bearing	76512051	1
15	Ring of Bearing	26152022	1
16	Evaporator Assy	01002937	1
17	Evaporator Support	24212133	1
18	Pipe Clamp	2611216401	1
19	Motor Press Plate	26112494	1
20	Fan Motor	15012116	1
21	Wall Mounting Frame	01252218	1
22	Drainage hose	05230014	1
23	Step Motor	15012086	1
24	Crank	10582070	1
25	Air Louver 2	1051211702	1
26	Axile Bush	10542036	1
27	Electric Box Cover2	2012214204	1
28	Electric Box Assy	20402029	1
29	Main Board	30135716	1
30	Jumper	4202300106	1
31	Electric Box	20112108	1
32	Terminal Board	42010268	1
33	Electric Box Cover1	20122154	1
34	Shield cover of Electric Box	01592092	1
35	Remote Controller	30510125_J06911	1
36	Ambient Temperature Sensor	390000451	1
37	Temperature Sensor	390000591	1
38	Power Cord	4002046421	1
39	Connecting Cable	4002053603	0
40	Connecting Cable	400205401	0
41	Cold Plasma Generator	1114001602	1

The data above are subject to change without notice.

(3)GAN-A240VL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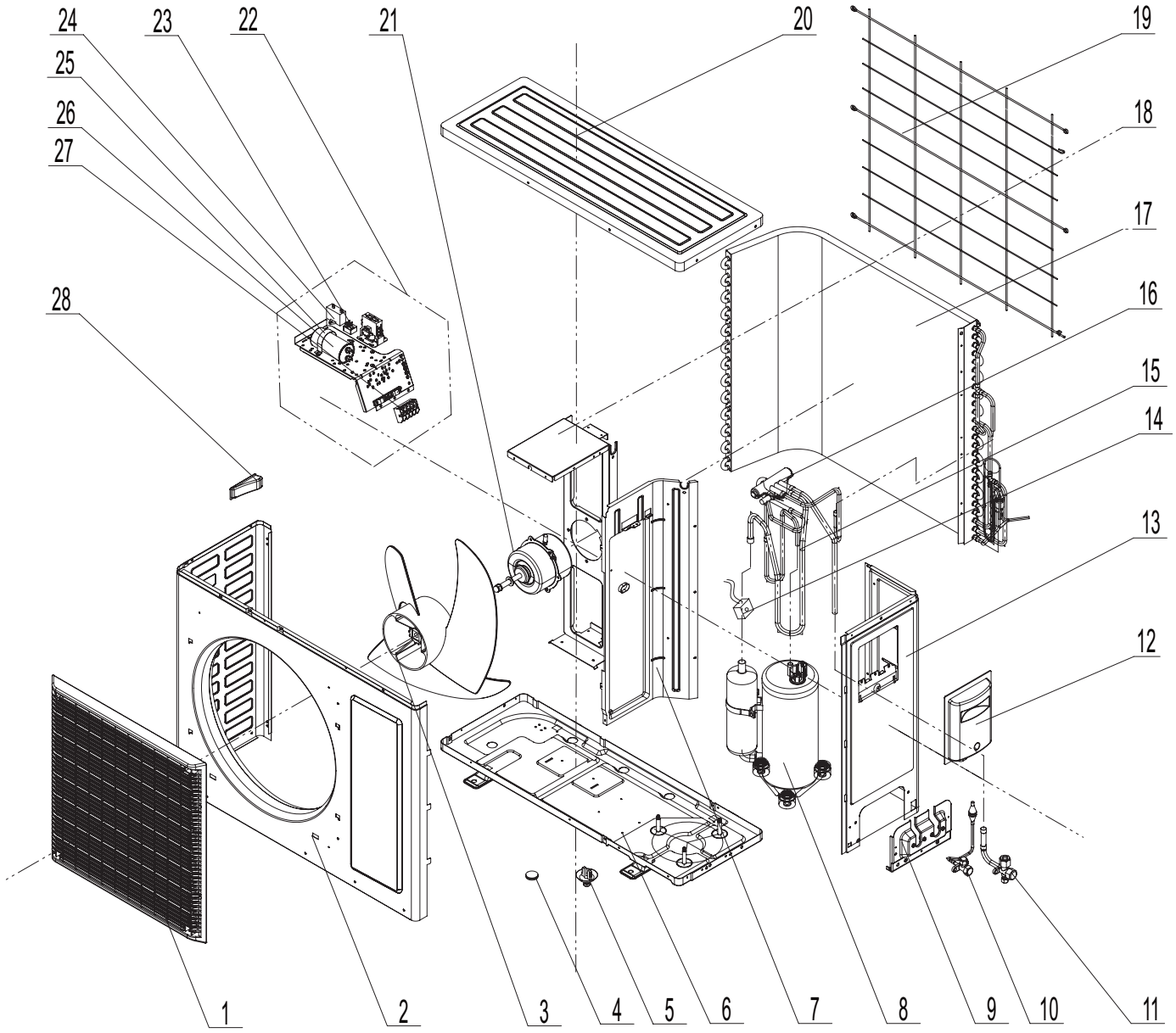
No.	Description	Part Code	Qty
		GAN-A240VL	
	Product Code	CA305N01400_J06911	
1	Front Panel Assy	20022278_J06911	1
2	Filter Sub-Assy	11122091	2
3	Screw Cover	242520179	3
4	Front Case Assy	2001297401	1
5	Air Louver 1	1051215901	3
6	Helicoid Tongue	2611218702	1
7	Left Axile Bush	10512037	1
8	Rear Case assy	2220219701	1
9	Rubber Plug (Water Tray)	76712012	1
10	O-Gasket of Cross Fan Bearing	76512203	1
11	O-Gasket sub-assy of Bearing	76512051	1
12	Cross Flow Fan	10352030	1
13	Evaporator Support	24212103	1
14	Evaporator Assy	0100257205	1
15	Wall Mounting Frame	01252032	1
16	Motor Press Plate	26112316	1
17	Fan Motor	15012098	1
18	Pipe Clamp	2611218801	1
19	Drainage Hose	0523001405	1
20	Step Motor	1521300101	1
21	Crank	10582070	1
22	Display Board	30565207	1
23	Guide Louver	1051220801	1
24	Axile Bush	10542036	2
25	Electric Box	20112108	1
26	Terminal Board	4201026201	1
27	Electric Box Cover2	2012214204	1
28	Main Board	30135718	1
29	Shield Cover of Electric Box	01592092	1
30	Electric Box Cover1	20122154	1
31	Jumper	4202300114	1
32	Electric Box Assy	20402064	1
33	Power Cord	400203253	1
34	Connecting Cable	4002053603	0
35	Connecting Cable	400205382	0
36	Temperature Sensor	390000591	1
37	Ambient Temperature Sensor	390000451	1
38	Remote Controller	30510125_J06911	1
39	Cold Plasma Generator	1114001602	1

The data above are subject to change without notice.

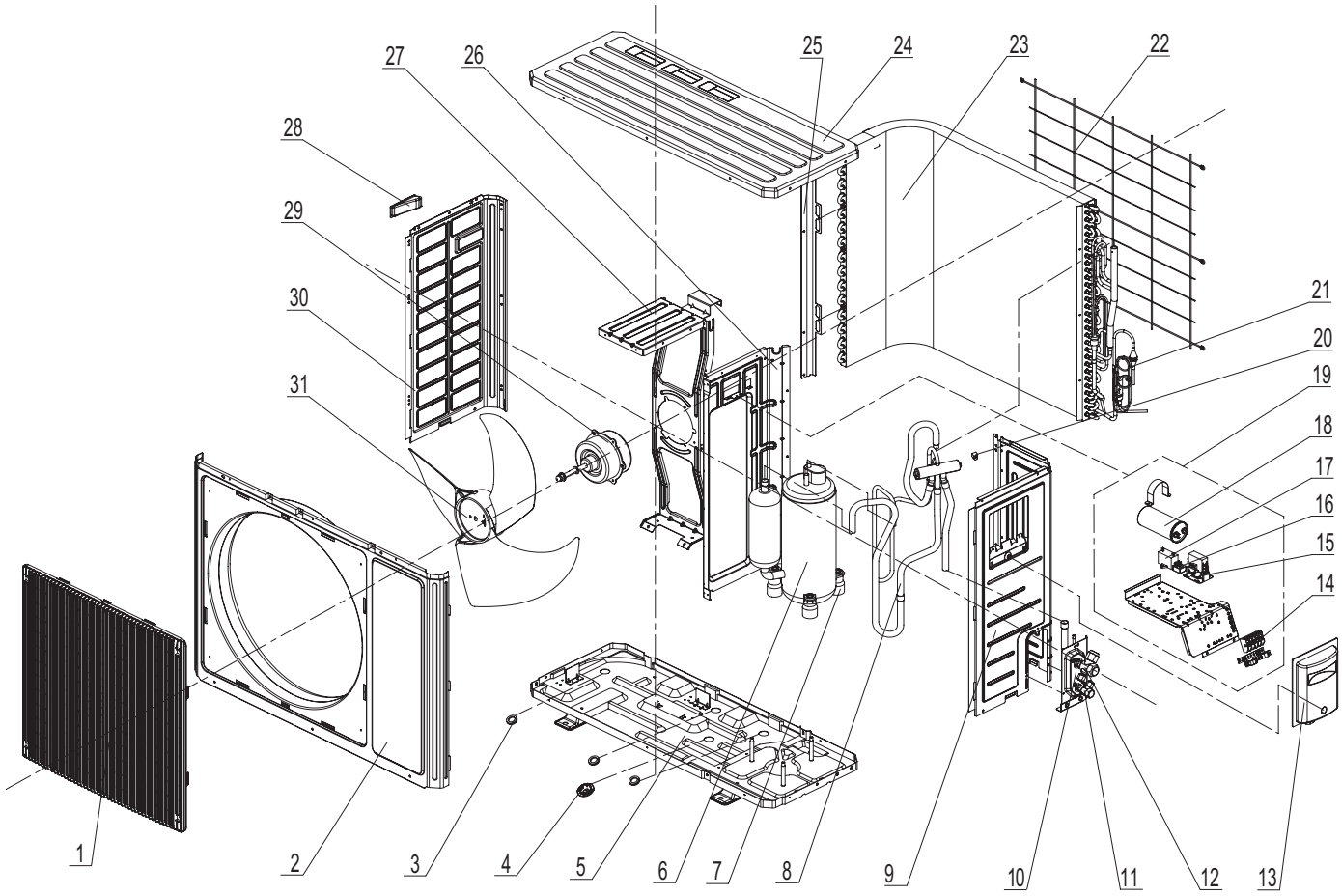
(2)GAG-A180VL



No.	Description	Part Code	Qty
		GAG-A180VL	
	Product Code	CA144W04300_J06911	
1	Front Grill	22415001	1
2	Front Panel	01305015	1
3	Axial Flow Fan	10335257	1
4	Drainage hole Cap	06813401	3
5	Drainage Connecter	06123401	1
6	Chassis Sub-assy	01203932P	1
7	Clapboard Sub-Assy	01233035	1
8	Compressor and Fittings	00101079	1
9	Valve Support Sub-Assy	01713075	1
10	Valve	07100003	1
11	Cut off Valve	07130213	1
12	Handle	26235254	1
13	Right Side Plate	01305095P	1
14	Magnet Coil	430004002	1
15	4-Way Valve Assy	03123375	1
16	4-Way Valve	430004032	1
17	Condenser Assy	01113642	1
18	Motor Support Sub-Assy	0170305901	1
19	Rear Grill	0147500401	1
20	Top Cover	01255001	1
21	Fan Motor	15015057	1
22	Electric Box Assy	02603538	1
23	Terminal Board	42010265	1
24	Capacitor CBB61	33010027	1
25	Capacitor Clamp	02143401	1
26	Capacitor CBB65	33000012	1
27	Terminal Board	42010265	1
28	Left Handle	26235401	1

The data above are subject to change without notice.

(3)GAG-A240VL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No.	Description	Part Code	Qty
		GAG-A240VL	
	Product Code	CA144W05000_J06911	
1	Front Grill	22415002	1
2	Front Panel	01535008P	1
3	Drainage hole Cap	06813401	3
4	Drainage Connecter	06123401	1
5	Chassis Sub-assy	0280305401P	1
6	Compressor and Fittings	00103884	1
7	Compressor Gasket	76711043	3
8	4-Way Valve Assy	03073033	1
9	Right Side Plate	01305094P	1
10	Valve Support Sub-Assy	01713098P	1
11	Cut off Valve Sub-Assy	07133170	1
12	Cut off Valve	07133157	1
13	Handle	26235254	1
14	Terminal Board	420101941	1
15	AC Contactor	44010245	1
16	Terminal Board	42011147	1
17	Capacitor CBB61	33010010	1
18	Capacitor CBB65	33000001	1
19	Electric Box Assy	0260317401	1
20	Magnet Coil	430004002	1
21	Capillary Sub-assy	03103967	1
22	Rear Grill	01475007	1
23	Condenser Assy	01113415	1
24	Top Cover	01255005P	1
25	Supporting Board(Condenser)	01795010	1
26	Clapboard Sub-Assy	01235027	1
27	Motor Support Sub-Assy	01705020	1
28	Left Handle	26235401	1
29	Fan Motor	1501506102	1
30	Left Side Plate	01305093P	1
31	Axial Flow Fan	10335008	1

The data above are subject to change without notice.

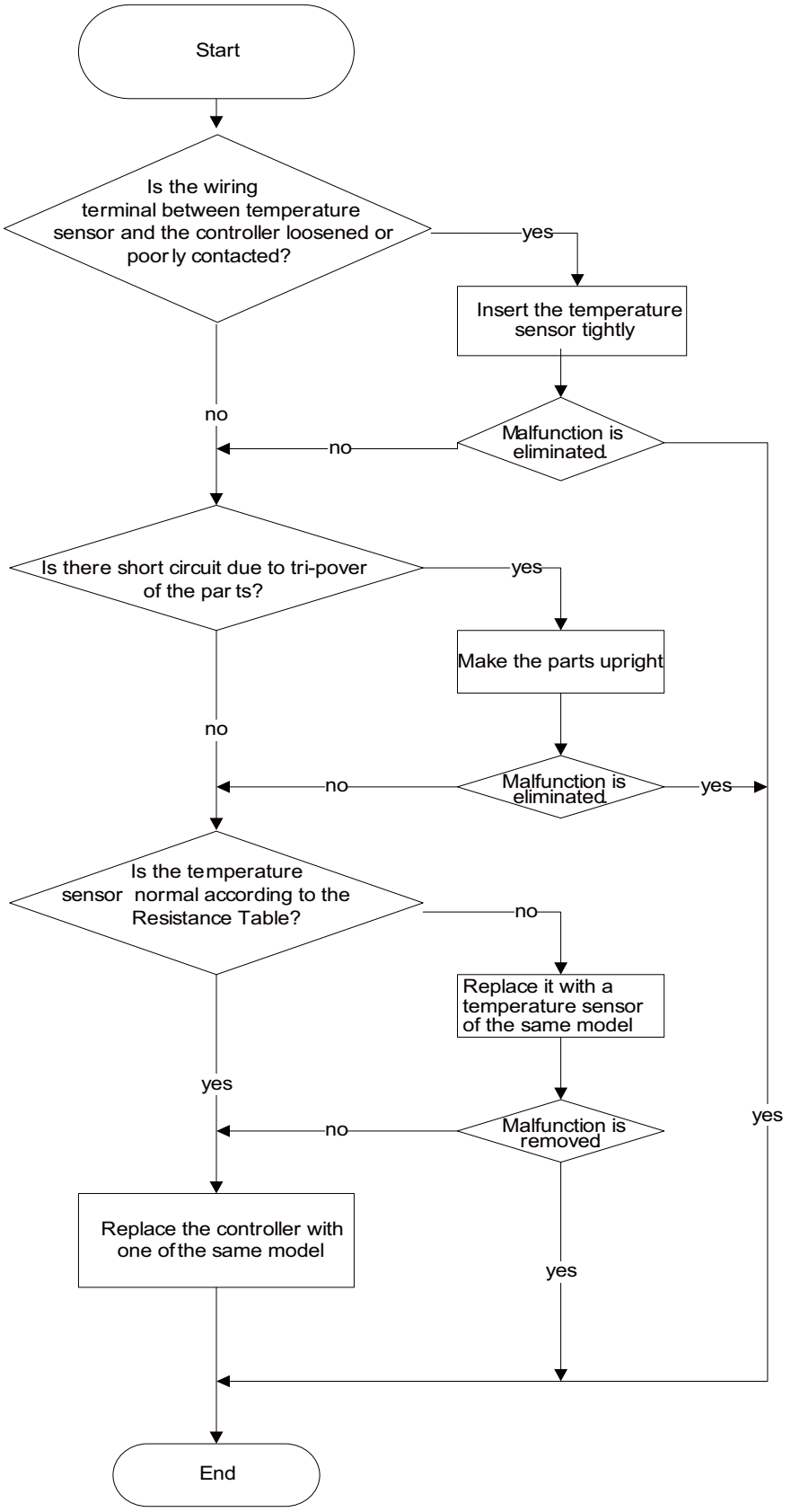
9. Troubleshooting

9.1 Error Code List

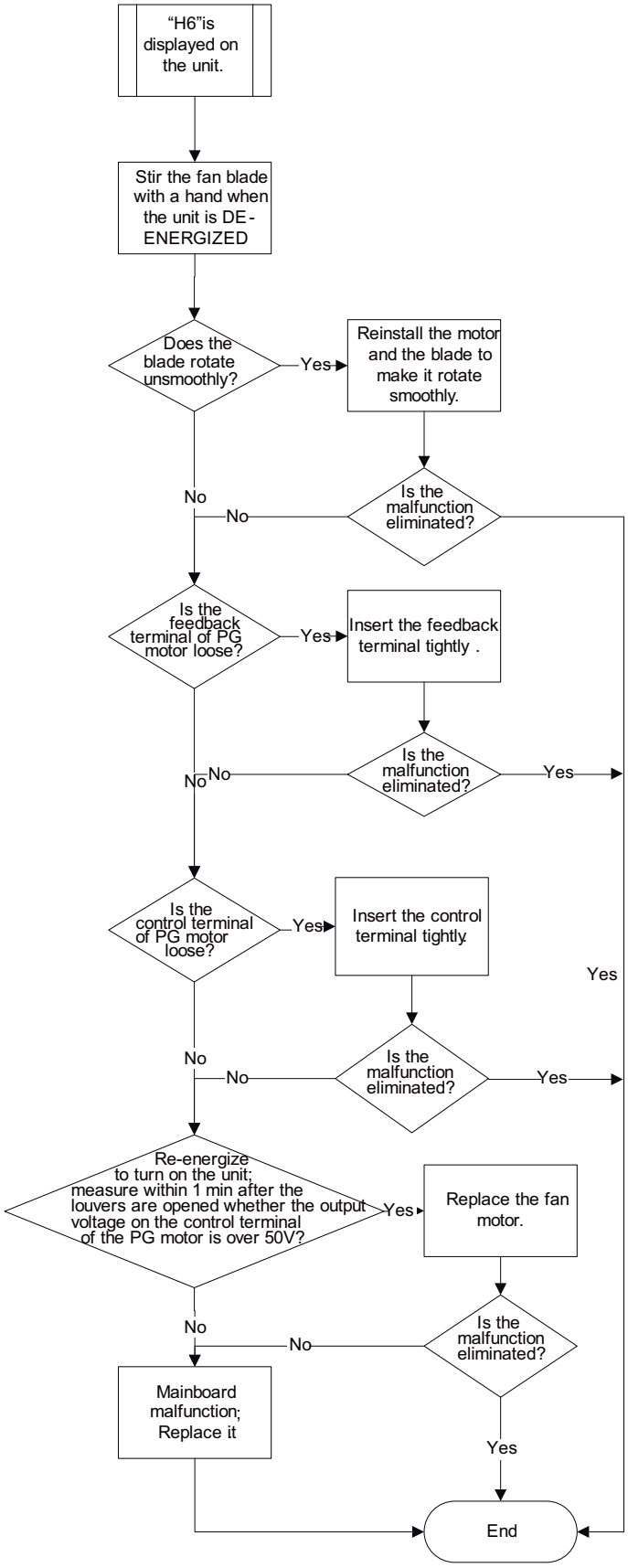
No.	Malfunction Name	Display Method of Indoor Unit				A/C Status	Possible Causes
		Error Code	Indicator lamp (During blinking, ON for 0.5S and OFF for 0.5 S)				
			Operation Lamp	COOL Lamp	HEAT Lamp		
1	Indoor ambient temperature sensor is open/ short circuited	F1		OFF 3S and blinks once		The unit will stop operation as it reaches the temperature point. During cooling and drying operation, except indoor fan operates, other loads (such as compressor, outdoor fan, 4-way valve) stop operation; During heating operation, the complete unit stops operation.	1. The wiring terminalbetween indoor ambient temperature sensor and controller is loosenedor poorly contacted; 2. There's short circuit due to trip-over of the parts on controller; 3.Indoor ambient temperature sensor is damaged (Please check it by referring tothe resistance table for temperature sensor) 4. Main board is broken.
2	Indoor evaporator temperature sensor is open/ short-circuited	F2		OFF 3Sand blinks twice		The unit will stop operation as it reaches the temperature point. During cooling and drying operation, except indoor fan operates, other loads stop operation; During heating operation, the complete unit stops operation.	1. The wiring terminal between indoor evaporator temperature sensor and controller is loosenedor poorly contacted; 2. There's short circuit due to the trip-over of the parts on controller; 3.Indoor evaporator temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor) 4. Main board is broken.
3	PG motor (indoor fan motor) does not operate	H6	OFF 3S and blinks 11 times			Indoor fan, outdoor fan, compressor and electric heat tube stop operation. 2minutes later, 4-way valve stops; horizontal louver stops at the current position.	1. The feedback terminal of PG motor is notconnected tightly. 2. The control terminalof PG motor is not connected tightly. 3. Fan blade rotates unsmoothly due to improper installation. 4. Motor is notinstalled properly and tightly. 5. Motor is damaged. 6. Controller is damaged.
4	alfunction protectionof jumper cap	C5	OFF 3S and blinks 15 times			Operation of remote controller or control panel is available, but the unit won't act.	1. There's not jumper cap on the controller. 2. Jumper cap is notinserted properly and tightly. 3. Jumper cap is damaged. 4. Controller is damaged.
5	Overcurrent protection	E5	OFF 3S and blinks 5 times			During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	1. Unstable supply voltage. Normal fl uctuation shall be within 10% of the rated voltage on the nameplate. 2. Supply voltage is too low and load is too high. 3. Measure the current of live wire on main board. If the current isn't higher than the overcurrent protection value, please check the controller. 4. The indoor and outdoor heat exchangers are too dirty, or the air inlet and air outlet are blocked. 5. The fan motor is not running. Abnormal fan speed: fan speed is too low or the fan doesn't run 6. The compressor is not running normally. There is abnormal sound, oil leakage or the temperature of the shell is too high, etc. 7. There's blockage in the system (filth blockage, ice plug, greasy blockage, Y-valve hasn't been opened completely)

9.2 How to Check Simply the Main Part

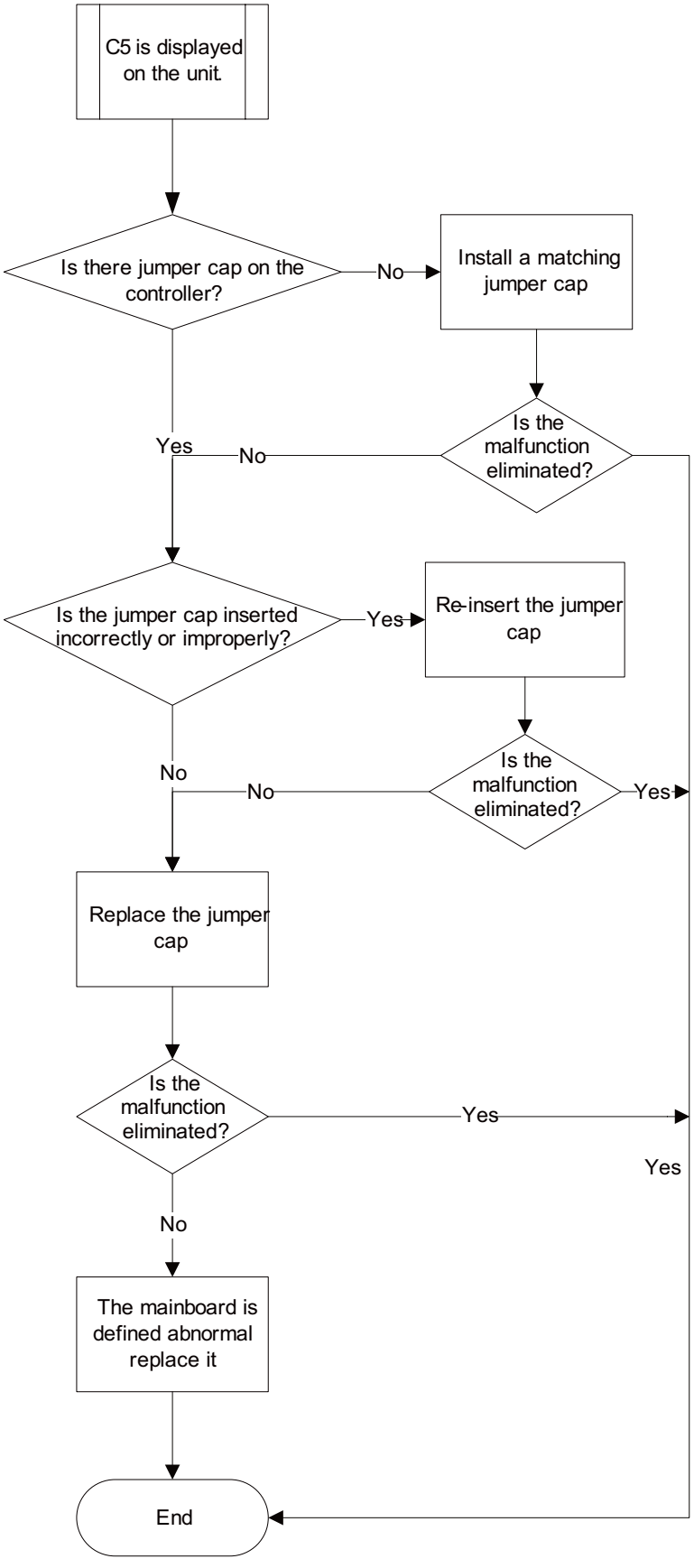
(1) Malfunction of temperature sensor



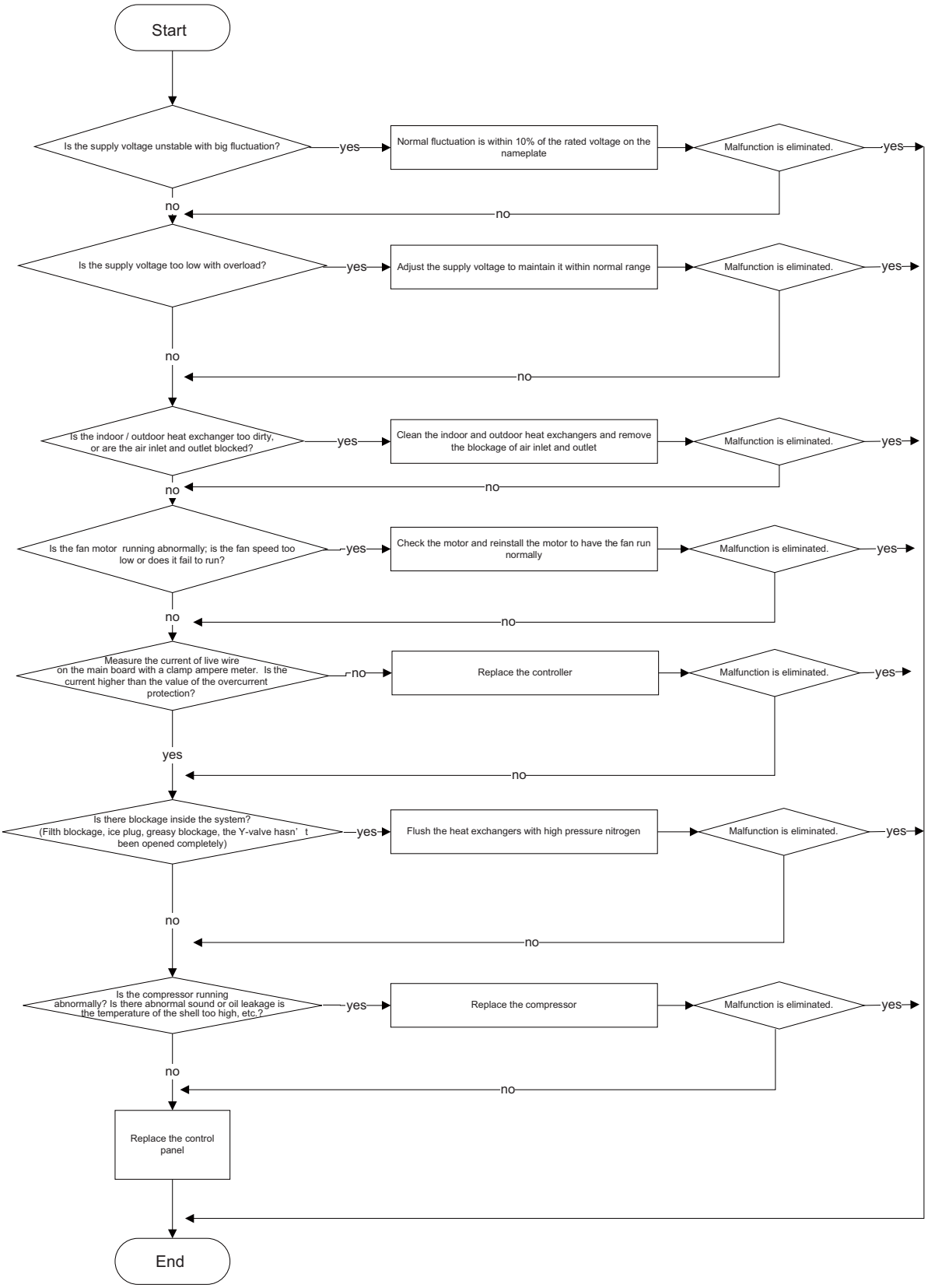
(2) PG motor (indoor fan) does not operate (H6)


"H6"is displayed on the unit.
Stir the fan blade with a hand when the unit is DE-ENERGIZED
Does the blade rotate unsmoothly?
Yes
Reinstall the motor and the blade to make it rotate smoothly.
Is the malfunction eliminated?
No
No
Is the feedback terminal of PG motor loose?
Yes
Insert the feedback terminal tightly .
Is the malfunction eliminated?
No
No
Yes
Is the control terminal of PG motor loose?
Yes
Insert the control terminal tightly.
Yes
Is the malfunction eliminated?
No
No
Yes
Re-energize to turn on the unit; measure within 1 min after the louvers are opened whether the output voltage on the control terminal of the PG motor is over 50V?
Yes
Replace the fan motor.
Is the malfunction eliminated?
No
No
Mainboard malfunction; Replace it
Yes
End

(3) Jumper cap malfunction (C5)



(4) Overcurent protection (E5)


Start
Is the supply voltage unstable with big fluctuation?
yes
Normal fluctuation is within 10% of the rated voltage on the nameplate
Malfunction is eliminated.
yes
no
no
Is the supply voltage too low with overload?
yes
Adjust the supply voltage to maintain it within normal range
Malfunction is eliminated.
yes
no
no
Is the indoor / outdoor heat exchanger too dirty, or are the air inlet and outlet blocked?
yes
Clean the indoor and outdoor heat exchangers and remove the blockage of air inlet and outlet
Malfunction is eliminated.
yes
no
no
Is the fan motor running abnormally; is the fan speed too low or does it fail to run?
yes
Check the motor and reinstall the motor to have the fan run normally
Malfunction is eliminated.
yes
no
no
Measure the current of live wire on the main board with a clamp ampere meter. Is the current higher than the value of the overcurrent protection?
no
Replace the controller
Malfunction is eliminated.
yes
yes
no
Is there blockage inside the system? (Filth blockage, ice plug, greasy blockage, the Y-valve hasn' t been opened completely)
yes
Flush the heat exchangers with high pressure nitrogen
Malfunction is eliminated.
yes
no
no
Is the compressor running abnormally? Is there abnormal sound or oil leakage is the temperature of the shell too high, etc.?
yes
Replace the compressor
Malfunction is eliminated.
yes
no
no
Replace the control panel
End

Appendix 1: Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units(15K)

Temp(℃)	Resistance(kΩ)		Temp(℃)	Resistance(kΩ)		Temp(℃)	Resistance(kΩ)		Temp(℃)	Resistance(kΩ)
-19	138.1		20	18.75		59	3.848		98	1.071
-18	128.6		21	17.93		60	3.711		99	1.039
-17	121.6		22	17.14		61	3.579		100	1.009
-16	115		23	16.39		62	3.454		101	0.98
-15	108.7		24	15.68		63	3.333		102	0.952
-14	102.9		25	15		64	3.217		103	0.925
-13	97.4		26	14.36		65	3.105		104	0.898
-12	92.22		27	13.74		66	2.998		105	0.873
-11	87.35		28	13.16		67	2.896		106	0.848
-10	82.75		29	12.6		68	2.797		107	0.825
-9	78.43		30	12.07		69	2.702		108	0.802
-8	74.35		31	11.57		70	2.611		109	0.779
-7	70.5		32	11.09		71	2.523		110	0.758
-6	66.88		33	10.63		72	2.439		111	0.737
-5	63.46		34	10.2		73	2.358		112	0.717
-4	60.23		35	9.779		74	2.28		113	0.697
-3	57.18		36	9.382		75	2.206		114	0.678
-2	54.31		37	9.003		76	2.133		115	0.66
-1	51.59		38	8.642		77	2.064		116	0.642
0	49.02		39	8.297		78	1.997		117	0.625
1	46.6		40	7.967		79	1.933		118	0.608
2	44.31		41	7.653		80	1.871		119	0.592
3	42.14		42	7.352		81	1.811		120	0.577
4	40.09		43	7.065		82	1.754		121	0.561
5	38.15		44	6.791		83	1.699		122	0.547
6	36.32		45	6.529		84	1.645		123	0.532
7	34.58		46	6.278		85	1.594		124	0.519
8	32.94		47	6.038		86	1.544		125	0.505
9	31.38		48	5.809		87	1.497		126	0.492
10	29.9		49	5.589		88	1.451		127	0.48
11	28.51		50	5.379		89	1.408		128	0.467
12	27.18		51	5.197		90	1.363		129	0.456
13	25.92		52	4.986		91	1.322		130	0.444
14	24.73		53	4.802		92	1.282		131	0.433
15	23.6		54	4.625		93	1.244		132	0.422
16	22.53		55	4.456		94	1.207		133	0.412
17	21.51		56	4.294		95	1.171		134	0.401
18	20.54		57	4.139		96	1.136		135	0.391
19	19.63		58	3.99		97	1.103		136	0.382

Appendix 2: Resistance Table of Outdoor and Indoor Tube Temperature Sensors(20K)

Temp(℃)	Resistance(kΩ)		Temp(℃)	Resistance(kΩ)		Temp(℃)	Resistance(kΩ)		Temp(℃)	Resistance(kΩ)
-19	181.4		20	25.01		59	5.13		98	1.427
-18	171.4		21	23.9		60	4.948		99	1.386
-17	162.1		22	22.85		61	4.773		100	1.346
-16	153.3		23	21.85		62	4.605		101	1.307
-15	145		24	20.9		63	4.443		102	1.269
-14	137.2		25	20		64	4.289		103	1.233
-13	129.9		26	19.14		65	4.14		104	1.198
-12	123		27	18.13		66	3.998		105	1.164
-11	116.5		28	17.55		67	3.861		106	1.131
-10	110.3		29	16.8		68	3.729		107	1.099
-9	104.6		30	16.1		69	3.603		108	1.069
-8	99.13		31	15.43		70	3.481		109	1.039
-7	94		32	14.79		71	3.364		110	1.01
-6	89.17		33	14.18		72	3.252		111	0.983
-5	84.61		34	13.59		73	3.144		112	0.956
-4	80.31		35	13.04		74	3.04		113	0.93
-3	76.24		36	12.51		75	2.94		114	0.904
-2	72.41		37	12		76	2.844		115	0.88
-1	68.79		38	11.52		77	2.752		116	0.856
0	65.37		39	11.06		78	2.663		117	0.833
1	62.13		40	10.62		79	2.577		118	0.811
2	59.08		41	10.2		80	2.495		119	0.77
3	56.19		42	9.803		81	2.415		120	0.769
4	53.46		43	9.42		82	2.339		121	0.746
5	50.87		44	9.054		83	2.265		122	0.729
6	48.42		45	8.705		84	2.194		123	0.71
7	46.11		46	8.37		85	2.125		124	0.692
8	43.92		47	8.051		86	2.059		125	0.674
9	41.84		48	7.745		87	1.996		126	0.658
10	39.87		49	7.453		88	1.934		127	0.64
11	38.01		50	7.173		89	1.875		128	0.623
12	36.24		51	6.905		90	1.818		129	0.607
13	34.57		52	6.648		91	1.736		130	0.592
14	32.98		53	6.403		92	1.71		131	0.577
15	31.47		54	6.167		93	1.658		132	0.563
16	30.04		55	5.942		94	1.609		133	0.549
17	28.68		56	5.726		95	1.561		134	0.535
18	27.39		57	5.519		96	1.515		135	0.521
19	26.17		58	5.32		97	1.47		136	0.509

Appendix 3: Resistance Table for Outdoor Discharge Temperature Sensor (50K)

Temp(℃)	Resistance(kΩ)		Temp(℃)	Resistance(kΩ)		Temp(℃)	Resistance(kΩ)		Temp(℃)	Resistance(kΩ)
-29	853.5		10	98		49	18.34		88	4.75
-28	799.8		11	93.42		50	17.65		89	4.61
-27	750		12	89.07		51	16.99		90	4.47
-26	703.8		13	84.95		52	16.36		91	4.33
-25	660.8		14	81.05		53	15.75		92	4.20
-24	620.8		15	77.35		54	15.17		93	4.08
-23	580.6		16	73.83		55	14.62		94	3.96
-22	548.9		17	70.5		56	14.09		95	3.84
-21	516.6		18	67.34		57	13.58		96	3.73
-20	486.5		19	64.33		58	13.09		97	3.62
-19	458.3		20	61.48		59	12.62		98	3.51
-18	432		21	58.77		60	12.17		99	3.41
-17	407.4		22	56.19		61	11.74		100	3.32
-16	384.5		23	53.74		62	11.32		101	3.22
-15	362.9		24	51.41		63	10.93		102	3.13
-14	342.8		25	49.19		64	10.54		103	3.04
-13	323.9		26	47.08		65	10.18		104	2.96
-12	306.2		27	45.07		66	9.83		105	2.87
-11	289.6		28	43.16		67	9.49		106	2.79
-10	274		29	41.34		68	9.17		107	2.72
-9	259.3		30	39.61		69	8.85		108	2.64
-8	245.6		31	37.96		70	8.56		109	2.57
-7	232.6		32	36.38		71	8.27		110	2.50
-6	220.5		33	34.88		72	7.99		111	2.43
-5	209		34	33.45		73	7.73		112	2.37
-4	198.3		35	32.09		74	7.47		113	2.30
-3	199.1		36	30.79		75	7.22		114	2.24
-2	178.5		37	29.54		76	7.00		115	2.18
-1	169.5		38	28.36		77	6.76		116	2.12
0	161		39	27.23		78	6.54		117	2.07
1	153		40	26.15		79	6.33		118	2.02
2	145.4		41	25.11		80	6.13		119	1.96
3	138.3		42	24.13		81	5.93		120	1.91
4	131.5		43	23.19		82	5.75		121	1.86
5	125.1		44	22.29		83	5.57		122	1.82
6	119.1		45	21.43		84	5.39		123	1.77
7	113.4		46	20.6		85	5.22		124	1.73
8	108		47	19.81		86	5.06		125	1.68
9	102.8		48	19.06		87	4.90		126	1.64

Note: The information above is for reference only.